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INDUSTRIAL PROSPECTS IN 1926

THERE is every reason to believe that in the coming year more attention will be devoted to an examination of the real difficulties underlying our industrial position. We write in the hope and belief that during 1926 we shall finally get to close grips with the hard economic facts which are of cardinal importance to the nation. It is true there is no certainty that the conclusions will be acted upon, but we are optimistic enough to believe that circumstances are likely to evolve what we have failed to do by theory.

No one, we think, seriously believes that the daily bulletins recording a slight drop in unemployment here and prospects of more work there, represent any real improvement in the wasting disease which has overtaken industry. The causes lie much deeper, and the hopeful sign is that we are beginning to realise that there is something fundamentally wrong. As time goes on, there is evidence that we are shedding many of our post-war illusions, and that amidst this chaos of loose thinking we departed from the sound principles of economics. We have fought hard to retain the false conditions of prosperity following on the war, and like invalids in certain kinds of illnesses we find after a long course of drug-taking that we are not recovering from the disease. It pleases many to distinguish between classes and masses, and between capital and labour; but these distinctions and alarms merely serve to make harder the task of those who earnestly desire to hasten the necessary internal adjustments in prices and wages. In point of fact, it is one of our grounds for optimism that the industrial problem has now reached the stage when it must be discussed in a plain common-sense manner by those immediately concerned. The nation has not reached this stage through clear and logical thinking; on the contrary, the urgent need to find the economic solution has been demonstrated by hard and bitter experience.

We have always held the belief that the sickness which has overtaken industry is to a large extent the result of the transitional stage in education. The so-call d benefits of popular education are now only beginning to be felt, and because of these we have been going through a period when it has been only too easy to absorb second-hand ideas upon political idealism and everything else. We have been nourished on a diet of sentimental economics, and, so far as we can see, every one has been experimenting with his education with the idea of seeking a new way of living without working for it. This may seem to be an exaggeration, but there is evidence in plenty to prove that, as a nation, we have been trying to get by argument what can only be earned by work. It is very much easier and much more popular to talk about work and standards of living, than to set to work to increase output and lower costs of production to earn any standard of living. The modern danger of running after facile doctrines reminds us of Pope's lines:—

> "'Tis education forms the common mind,
> Just as the twig is bent the tree's inclined."

The plain truth is that work, either as a means of wealth or anything else, has gone out of fashion, and some part of the blame for this we must attribute to the foolish post-war promises of our politicians. Unfortunately, the working-class people were not the only ones to succumb to the flamboyant appeals. The sentimental idea of economics gained a number of adherents from those who, prior to the war, had never given serious thought to labour problems. Consequently, what should have been a domestic matter between masters and men became everybody's concern. During the last few years we have all been experts for a few days on various theories to account for our industrial depression. Foreign exchanges, war debts, gold standards, income-tax, and subsidies, all have had their little day. All the evidence points to the fact that we cannot produce our goods at prices properly related to the general price level, and keep our businesses in a solvent condition. We have turned our Houses of Parliament into an industrial bureau, so that our facile theories should be given the chance to secure us something, apparently, for nothing. Where we cannot find a market for our goods and are unable to buy them ourselves, we look to the State to grant us relief in the form of subsidies or doles. Common sense, in its homely way, tells us that a dog cannot live on his own tail, but common sense at the moment is obscured by much more modern theories.

As we see it, this is the position we have won by exploiting that degree of knowledge which popular education has given us. By taking thought and limiting our hours of work and raising our wages per hour, we have reached a position where balance sheets are of no account. We claim as our right a certain standard of living, and we take it, but we do not give a passing thought to the fact that we are not earning it. It comes as a painful shock to discover that a higher standard of living means harder work or an increase in output. Economic laws, untampered with, result in a common-sense outlook upon industrial problems, whereas our experimental economic and social theories have produced chaos. The idea of a better England received a natural and popular interpretation when it indicated more reward for less labour. Had we been promised a better England on condition that we worked harder and increased our output, there would have been little need for anxiety to-day.

It is an assumption, we admit, to place our idea of common-sense against the theories and doctrines of those who genuinely seek to create a new social order. Nevertheless, we believe that when the problem is common to masters and men common sense will prevail in the end. We prefer the simple issue to all the cumbersome educational theories of a nation busy discussing the laws which govern economic activities. We have experimented with a number of unworkable theories, and there is no harm in that if we profit by the facts we find out from experience. We are beginning to distinguish between politics and economics, which is equivalent to saying that we look to no one for a cheap cure for our industrial ailment. We are wiser, in the sense that we realise that subsidies and doles are coming from our own pockets and lowering the standard of living. On the other hand, it is clear that we are not in the mood to accept the advice of the academic economist who tells us that our salvation lies in learning once again that work is an essential part of the privilege of existence, and, further, that the amount of our labour represents the standard of our living. Bitter medicine will not be accepted voluntarily; we prefer to go on to the point of exhaustion. When businesses are faced with insolvency and works are closed down, there is a clear issue for masters and men. It is their problem, and they alone can find the true economic solution.

Optimism and pessimism are states of mind which are commonly supposed to influence the currents of trade. At the beginning of a new year we are in the mood to think that better times are ahead, and, therefore, in danger of reasoning ourselves into this belief. We have been quite frank; we are only nearer to a solution because we are nearer to the final stage in the industrial drama, when the real problems of cost and output, "stripped to the buff," must be hammered out in a spirit of co-operation by masters and men.

NOTES.

Festina Lente.

AMID the varying arguments for and against the retention of Waterloo Bridge we have not seen attention shown to issues less concerned with the facts as they appear to-day, than as to the conclusions to be drawn from them. Is, after all, the increase of traffic in London streets to be regarded as a permanent and growing factor, or is it in degree only a temporary phenomenon and to be dealt with without these organic changes, such as the destruction of Waterloo Bridge? Changes in the commercial life of the country are developing fast, affecting the market of overseas trade, as foreign markets no longer require the goods they now produce for themselves. It appears that the expansion once possible is probably no longer so. This change brings with it the growing importance of home industries and agriculture, which may absorb much of the excess of urban population again. May not the tide soon flow back from London? In such a case, is it not more reasonable to concentrate on the more intelligent supervision of the existing traffic, diverting its cross channels, and adopting the one-way traffic, which has never been properly tested here, though working well in Paris, so avoiding these drastic mutilations? These are practical considerations which ought not to be lost sight of. We need not be too sentimental over Rennie's Bridge in regarding it as part of a traditional London which we ought not to destroy if it is in any way possible to preserve it, and this is a better argument than much of the pontifical appreciations which only weaken the case.

Waterloo Bridge.

THERE is much more involved in the controversy over Waterloo Bridge than the mere fight for its preservation. If the catch-word in the music halls that "Waterloo Bridge is falling down" were true (which it isn't), we may suppose that a new bridge would be promptly projected of a certain sort, without any regard to the general considerations of the position and kind of other bridges or the serious thought of how traffic congestion is to be improved. It is the long view which is needed for London, as we have so insistently claimed, and which is brought to special notice in the resolution of the London Society adopted last week. Some very serious and definite thought for the future is now the urgent need for all who desire to see London adequately and properly developed as an imperial city. It is only those who for years past have devoted thought to the subject and become conversant with the many difficulties that beset any attempts to make London a finer and better city who can adequately realise the urgent need for a wide and comprehensive vision.

A Dispassionate view of the Question.

IT would largely help to a better feeling about this if we could impart into the discussions a more generous and noble state of mind. No one person, no particular authority, no especial society, can claim a special right to be heard in such a matter—the most acute and careful thought has been bestowed on it by many able men, and it may be that none can claim a monopoly of earnest desire for the good of London. It is certainly no spirit of jealousy or disregard for those who govern London either in the City Council or the County Council or the numerous borough councils that actuates the London Society and others active in opposition to the destruction of Waterloo Bridge. We owe a debt of gratitude to those who have spent much of their life's work in doing public service on our councils. But the time has come when the ever-increasing labours of our councils leave no adequate chance for the wide and dispassionate view of a problem which involves railways, roads, bridges, and town-planning generally with all that is involved in making a great city convenient and beautiful. Directly a suggestion is made which involves a generous outlook on the future, the idealists we meet with raise an outcry against extravagant impossibilities. But it has been truly said that the really practical man is the great idealist, and we take leave to doubt whether a successful grocer's shop could be established with as little combination of foresight and prescience as is indicated by the present condition and outlook for London. Mr. C. R. Ashbee well says the real issue is outside London and outside the present moment.

The Action of the London Society.

WE shall see how far the action of the London Society, with its large and distinguished membership, will carry the public sentiment of London in sympathy with its resolution and its inevitable call for a public meeting of protest. At the meeting of the Council of the Society on the 30th ult., it was unanimously agreed—"That the Council of the London Society hereby protests emphatically against the decision of the London County Council

A Small Stone Bridge at Lunds, Yorkshire.

MR. ARTHUR STRATTON, F.S.A., F.R.I.B.A., Architect.

[This bridge, which has been erected in connection with some extensive works on an estate, is built of local stone, and shows adherence to local character and workmanship.]

Concrete Statue to an American Indian.

MR. LORADO TAFT, Sculptor.

[The concrete of which this statue is made was first poured into a mould made roughly to the shape of the figure, and then finished with the chisel.]

templated ten-story dwellings. The doctors and the wise economists are dead against the high dwellings (says Mr. Culpin), and we could wish his interesting article could be widely read.

Æsthetic Appreciation. IN the address given by Mr. G. F. Sinclair at the Annual Conference of Educational Associations, the lecturer laid stress on the importance of training in handicraft, &c., "if only to make them appreciative of the work of others." It is this lack of appreciation and of the power to distinguish which deprives public opinion of security. An improved appreciation in public opinion through education is the only security, and we are finding this in the failure to reach security any other way. With the return to improved values in education, this better training will gradually secure for us a higher standard which rejects the substitute, the bias of the intellectual, and the excess of individualism and so becomes national instead.

Ancient Monuments. WE are glad to see the further list in regard to the preservation of ancient monuments issued by the Commissioners of Works, which relates to a further 300 of them. This sort of stocktaking is very desirable and should secure us in the future from the neglect or unnoticed vandalism which has deprived us of so many of these ancient landmarks. It

to demolish Waterloo Bridge. It views with surprise and alarm a decision that involves the destruction of one of the great monuments of London, and that will break up one of the grandest architectural landscapes in the world. It therefore urges the Government to take steps to prevent the destruction of a monument that possesses so great national importance and value, and to explore fully the whole question of the cross-river communications throughout the London area."

Tenements and High Buildings. WE cannot, perhaps, wonder that many people have seen in the increased height of our buildings, both for commerce and for dwellings, an economical way of dealing with our overcrowded towns. But the idea has met with much opposing opinion, and one has only to imagine the crowd of people which will shortly occupy the three great buildings going up in Berkeley-street to realise how great a traffic burden is to be imposed on that part of London. We note that Mr. Ernest Culpin, L.C.C., has, with the aid of a graphic diagram, shown in the *London News* some of the considerations which arise in the problem of "tenement or cottage." He asks whether civilisation can really be progressing when the London County Council is proposing nine-story dwellings, and that in Liverpool and in Stepney there are being con-

By permission of H.M. Office of Works.

Byland Abbey: Interior.

[Part of South Wall before repair and excavation, bases of shafts being buried by heaps of débris. (*See article on p.* 44.)]

is not possible always to preserve ancient monuments where some public improvement under changed conditions compels their removal, and we have to avoid making a superstition of the old, but the reasons should fully justify such action, and it is not one to be left wholly for the locality to decide. Along with this desire for preservation we should like to see an equal recognition of the national importance of building with appreciation, distinction and permanence to-day. It is altogether too easy to sentimentalise over the old, and we must not forget that the primary claim on us is to build well ourselves.

An Architect on Craftsmanship. A LETTER of B. G. GOODHUE, the well-known American architect, in which he states "I should like to be merely one of three people to produce a building, *i.e.*, architect, painter, sculptor," represents the general expression of that collective aim in building which represents rather the principle behind all great architecture than any new principle. Instead of calling in the craftsman afterwards, his co-operation should run parallel with the growth of the plan and of the designing, thus merging the different offices in one. So that we do not assign the different functions too personally, but find the whole to be a growth, just as we recognise in any great national movement, not any particular individual but the impulse animating the whole. We have to achieve for all the arts a coeval place in building.

Coloured Concrete. AN account of the use of coloured concrete in the building of a bridge by the Cumberland County Council is of interest as showing the possibilities of adapting the material to local characteristics. In the case under notice, in order that the bridge might harmonise with its surroundings, the concrete was coloured with a mixture of granite and Bowscar red sand which had been used for the aggregate, thus matching houses in the neighbourhood built of pink sandstone.

Bay Window of a House in Warwickshire.

MR. OLIVER HILL, F.R.I.B.A., Architect.

Much caution and restraint is, however, necessary if the admixture of colour is to be admitted. It must be realised that it is not at all easy to introduce colour successfully which is not native to the material used, and it requires much care to prevent meretricious results. The use of a good grey or black—monochrome—

Sports Pavilion and Groundsman's Cottage for the Port of London Authority, Tilbury.

SIR EDWIN COOPER, Architect.

is preferable to polychrome colours. Grey or black, or warm brown, in contrast with the white of concrete is very suitable for striping or chequer work like the old flint and stone masonry, and can be very becomingly applied. For general use these limitations are very desirable, for unless kept within them it may become assertive and even vulgar, and there should be careful experiment and trial before using colour other than monochromatic at all.

Hot Water Supply to L.C.C. Dwellings. WE are informed that the London County Council are saving about £12 to £14 a house or flat, according to the type, by providing the hot water supply to the baths by mean of an eight-gallon copper. For reasons of economy the hot-water circulatory systems in both cottages and tenement dwellings have been abandoned. It is claimed that this is a very cheap method from the tenants' point of view, as hot water for baths can be obtained in from fifteen to twenty minutes with almost any kind of fuel—even house refuse. The hot water is conveyed from the copper to the bath by a simple syphonic arrangement of pipes. It is said that this system of hot-water supply also saves expense in the subsequent upkeep. A good example of this method can be seen on the East Hill Housing Estate at Wandsworth.

Stock Mouldings. A WRITER in the columns of an evening contemporary, in the course of some remarks about the study of interior decorations refers to what he terms "the tyranny of stock mouldings" as being "the curse of interior decoration in England to-day." It is a pity if the general public are misled by such expressions of opinion. The crude profiles of the joiner's stock mouldings too often abound in houses designed by speculating builders, but the shortest way of escape from the tyranny so-called is to employ an architect whose function is, *inter alia*, to design mouldings with taste and judgment.

Garden Cities and Town-Planning Association. A PAMPHLET has just been issued by the Garden C ties and Town-Planning Association called the Public Utility Society Handbook to explain how the solution of the housing problem may be helped forward by the formation of such societies. There are over 200 of these societies already in existence in this country which have carried out housing schemes.

Madison Square Buildings, New York. IT could hardly have been suspected when the Madison-square buildings were erected in New York some thirty-four years ago from the design of Messrs. McKim, Mead and White that, at the present time, they would have to disappear. The tower was something of a *tour de force* in its way, having been modelled on the design of the Giralda at Seville, and carried out with the most scrupulous study as to proportion and details. We give on page 39 Mr. Cass Gilbert's design for the building which is to be erected on the site.

Fewer Building Bankruptcies. WE note from the statistical abstract of failures and of bills for sale published in *Kemp's Mercantile Gazette* during 1925 that the building and timber trades have done better than in the preceding year. The total of bankruptcies for 1924 was 420; for 1925, 394; while the total of deeds of arrangement for 1924 was 219; for 1925, 217—showing a decrease in bankruptcies of 26, and in deeds of arrangement of 2. The figures are not perhaps cheering, but they are at least encouraging, forming as they do part of the definite improvement which is shown by statistics to have taken place during 1925 throughout the industries of the country generally. We hope that the improvement will be continued during the present year.

A Search for Knowledge. WE have received a letter from a correspondent who asks us to supply him with a certain amount of constructional knowledge which he lacks, and we give his note on another page. We are always glad to help readers where we can fairly do so, but we are inclined to draw the line when an inquirer's ignorance calls for knowledge properly supplied by experts, and paid for. We may be saying this from imperfect appreciation of the peculiar difficulties of our correspondent, and we should not wish to discourage anyone in the search for knowledge. The best course in this case would be to apply to an architect or builder.

Madison-square Garden, New York.
Erected 1890, Demolished 1925.

MESSRS. MCKIM, MEAD & WHITE, Architects.

[One of the earliest works of this famous firm of American architects, Madison-square Garden has now been demolished. Its site is to be occupied by a building designed by Mr. Cass Gilbert, a perspective view of which [is illustrated on p. 39.]

THE TREND OF 1925

By HOWARD ROBERTSON, F.R.I.B.A., S.A.D.G.

We are, at the beginning of a New Year, too close to the old year to see the events in proper perspective and to discern whether, in the architectural activity which has been going on in this country and abroad, there are any collective and clearly defined tendencies which will crystallise into one of those architectural movements which beget a style characteristic of an epoch. It is certainly almost possible to draw conclusions from the strength and rapid growth of modern movements in certain countries abroad, but even here it is difficult to distinguish whether such movements are not due to the influence of a forceful minority, and whether the next few years will not see tendencies, if not exactly reactionary, at least widely divergent as regards ideals. In England, however, the home of originality in thought but of conservatism in actual experiment, there is not even evidenced a definite minority movement, but rather a general drift towards individual research on the part of architects, who have a weather eye on the restrictions on expression imposed by the present-day client, and another eye equally wide open towards the experiments and progress which are taking place on the Continent and in the U.S.A.

As regards the welfare of the architectural profession in this country, the past year has been of particular importance, for, quite apart from the large work of reorganisation which has been carried out within the structure of the professional group there seems to emerge the unquestionable fact that the architect has, in 1925, enormously consolidated his position as regards the general public, and become once more not only an influence as regards art, but an indispensable factor in the creation of buildings of even minor importance.

This belief is a very comforting one, for the spade work which has been done by both individual and united effort means the formation of solid foundations for future prosperity of the profession, and it is also a sign of hope and encouragement because of the origins of the effort, which lie in that general improvement of architectural standards which gives to the architect both the desire and the right to assert himself. It is not so long since pessimists foretold the gradual relegation of the architect to a secondary plane in favour of the engineer in one sphere and the decorator in another. But to-day, it is safe to say that a realisation of the danger has awakened in architects not only initiative and powers of organisation, but also the desire to perfect their technique on both the artistic and the business side of architecture, with the result that the obvious advantages of employing for each building one master designer and co-ordinator are no longer outweighed by the fear of incompetent performance and weak, if expensive, results.

We have said that effort in 1925 has been both individual and collective. To the credit of the individual architect lies the courage of sane experiment, for the effort to remodel at one time both one's own outlook and that of the client requires courage; and to the credit of the profession as a whole lies the immense amount of work and thought which has gone towards the improvement of architectural education, the relaxation of old restrictions and prejudices against original thought and expression, and the task of educating the general public through such legitimate methods of propaganda as exhibitions, lectures, and literature.

Noteworthy amongst the important committees of the Royal Institute has been the Board of Architectural Education, a body which has had the precious endowment of a definite policy which it has consequently been allowed to pursue with singleness of purpose. This policy has been the improvement in methods and standards of architectural education, and, in particular, a whole-hearted support of the architectural schools which are thus given a fair chance to justify their existence as the soundest medium at present existing for all-round training in architecture. When one realises the opposition which might so easily have nullified the efforts of educational institutions, and the impatience which cries out for perfection in result at an impossibly early stage in the school's existence, it can be appreciated what tenacity of purpose has been shown by the Board as a whole. It is not here a question of school training versus any other method, but rather the value of allowing the modern system the same chance of proving its worth as was given by the long period of trial of the pupilage system; the school system is an experiment on a large scale, and while most of us are confident in the outcome, we must still give credit to a body of men who allow such experiment to be made under conditions as ideal as can humanly be provided.

The future of architecture in England undoubtedly lies in the hands of the students, who are even now qualifying for their degrees and diplomas, for it is they who have received the strongest collective systematised training, and the influences which have worked upon them will inevitably produce a powerful result in later practice. The tendencies, however, which will result from this education, whether for progress or otherwise, will by no means be the responsibility solely of the staffs of the architectural schools, for the general influences of an epoch are of far greater weight than the influences of individual personalities, and it must be remembered that the views and outlook of the teachers themselves are being constantly modified and moulded by the general trend of thought not only in architecture but in other related spheres.

The world is to-day still in a state of restlessness; it is a period of uneasiness, of speculation, of inquiry, and, fortunately, too, of a search for ideals in art as in life. It is natural, therefore, to expect in architecture a reflection of this state of uncertainty, with the accompaniment of conflict between partisans of different schools of thought and much harsh criticism of those who have ventured off the beaten track. The past year, in fact, has been especially distinguished by the outspoken, almost virulent, criticism which has greeted the tentative expression of those who have sought to depart from accepted formulæ, and it is this very sharpness of criticism which offers confirmation of the belief that a new era of architectural progress is about to dawn.

Significant also, and confirming this impression, is the large volume of literature which has appeared during the past year on architectural subjects, ranging from books which expound architecture to the layman, to works dealing with the latest phases of the modern movement in the two hemispheres. Once again it is being proved how rapidly the dissemination of information influences art, for the visits of architects to Europe and America, followed by an absorption of the impressions received, is directly reflected in the composition and detail of some of the most recent buildings in this country. Interchange of ideas and borrowings and adaptations of new methods in design and building technique should not be looked upon askance, for throughout history our foremost architects have been those who did not hesitate, in the spirit if not in the flesh, to leave their native heath and profit by the experience of others. Every epoch which is vital and progressive witnesses the struggle between the impetuous pioneer and the experienced conservative, and this struggle is to-day perfectly typified in present-day architecture in England, extending from the teaching influences of the schools of architecture right up into the highest ranks of the profession. But one thing is certain, namely, that the art of architecture can never stand still as long as evolution continues in the life of society as a whole; and so it would seem quite clear that those who are in the vanguard, while they may suffer individually, as do all pioneers in thought and invention, will ultimately find the satisfaction of seeing others follow in their footsteps and benefit by both their successes and failures.

As regards the schools of architecture, we witness a gradual breaking away from set formulæ, and even in these schools which a few years ago did not hesitate to publish an "expression of faith" in some particular phase of architectural style, marked changes have taken place in the direction of a freer—that is, a more modern—expression. The exhibition of students' work held during last October at the R.I.B.A. galleries showed a difference in feeling even from that of the big Congress in Architectural Education of the preceding year. It can no longer be fairly maintained that any stronghold of style is to-day impregnable, and while there must always remain in the schools differences of degree, yet there is clearly discernible the beginnings of a general modern expression. This trend is almost certainly due to a radical change in the system of teaching, by which the composition of architectural form is taught on the lines of theory and logic, by the study of first principles, instead of, as in the past, by exercises in the adaptation of the external features of great historic styles. Architectural students have for years suffered from the overwhelming richness of tradition, and have been taught to design on a basis of systematic pilfering—a method which inevitably ends in loss of reverence for the past and self-respect in the present. The effort in the schools to-day is directed towards the principles of design, and when the Orders of architecture are studied it is from the standpoint of their beauty as examples of unassailable logic and excellence of form derived from the application of certain principles. These principles must be isolated and then analysed if the Orders are to be understood in theory and respected in practice.

In the world of actual buildings, we can distinguish the work of architects endowed with a genius for rightness of design which is instinctive, and those others whose work to-day is showing the results of long years of private research and individual experiment. It is in this latter category, whose successes in building are based on a slowly formed theory, tested by experience, that will be found the nucleus for a "new school," for here logic is at work and principles can be laid down and examined.

It is noticeable that it is the work of these men which has the closest affinities with that of the leaders of modern architectural thought in other countries. There is a distinct family resemblance in basic conception, if not in expression and detail, between our few examples of really modern work and those existing, say, in Germany and Holland; this will be realised by all those architects who have compared, for example, Adelaide House and the big new block of offices in Amsterdam, by de Basel. It is safe to say that neither building owes anything to the other, and yet there is a similarity of conception arising from an examination of a similar problem along parallel lines.

Looking back upon English architectural achievement during the past year, there is every reason to feel encouraged, not so much for the results obtained as for the promise of results to come. Understanding and appreciation by the public of new forms and departures from tradition is never to be expected, but the storms which have swept over the heads of artists will not daunt them, for history repeats itself in respect of contumely resolving itself by gradual familiarity into respect and often affection. There is need, however, if a united front is to be maintained, of a wider toleration amongst architects themselves, of a lessened impatience with their elders on the part of the younger generation, and a greater magnanimity towards the young on the part of those architects who are the unwilling witnesses of inevitable changes. There is need, too, for improved technical knowledge, for the birth of a truly modern craft spirit, and for the support of every individual and collective effort to bring architecture more closely into contact with the public and its requirements.

From "The American Architect."

Building for the New York Life Insurance Company, to be erected on the site of the Madison Square Garden, New York.

MR. CASS GILBERT, Architect.

THE RESTORATION OF REIMS CATHEDRAL

By H. P. CART DE LAFONTAINE, O.B.E.

AMONG the many historic and beautiful monuments of the past devastated as a result of the war there is none which touches the popular imagination to a greater degree than the historic Cathedral of Reims—the "Westminster Abbey" of France. It is so intimately connected with French history (as the building in which her kings were crowned from legendary times to the *sacre* of Napoleon), that in the war it was one of the few cathedrals intentionally and persistently shelled by the Germans for political reasons.

In consequence, one was amazed, on seeing this great example of mediæval architecture for the first time just after the Armistice to find that—at the first glance—it appeared to be more or less intact save for the disappearance of the roof and such consequent damage as was due to the disastrous fire caused by bombardment with incendiary shells in 1918.

The roof had gone; the great west front was scarred and cracked where the waves of flame from the scaffolding which encased it (and which had been erected before the war for repairs) had fed the flames. But the great western towers, the flying buttresses, and even much of the tracery in the great windows appeared to have passed through the bombardments and the fire almost undamaged—a striking testimony to the skill and science of the work of the architects and masons who designed and executed the building. Actually this apparent stability was deceptive; with the exception of the north transept, the whole structure had been shaken to very near danger point, and was in danger of collapse.

Last autumn I had the good fortune to make the acquaintance of Monsieur Deneux, the *Architecte en Chef* of the Commission of Historical Monuments of the French State, entrusted with the exacting and difficult task of supervising what is in effect the underpinning and rebuilding of this great cathedral. And here it may not be without interest to mention that our distinguished confrère told me that many years previously he had spent several months preparing a set of measured drawings of those very parts of the building which have suffered most damage, little dreaming that he would later have the task now entrusted to him.

The *architecte en chef* in this case, unlike most of his colleagues, lives on the spot and has his office and the stores in the ruined buildings of the old Archiepiscopal Palace, where old materials, fragments of sculpture, casts, and working models are carefully preserved. Here, too, in a large vaulted gallery, is preserved the old lead which once covered the cathedral roof, and which during the fire melted and spread about the fabric in fantastic festoons and stalactites of molten metal. This has since been collected, purified, and stacked in readiness for re-use in the covering of the new roof which is—from the technical point of view—the most interesting feature of the restoration of the fabric.

In reply to a suggestion that an account of this part of the work would be of interest to British architects, Monsieur Deneux has kindly sent me the following account of the problem, the way it has been solved, and the methods employed in construction:—

In a brief reference to Mr. J. D. Rockefeller, M. Deneux says, without his generous financial aid "it is very improbable that the French Government would have been able so rapidly to re-establish the outer roof-covering of the Cathedral of Reims." In fact, the programme which had been agreed upon consisted in repairing, as rapidly as possible, the interior of the edifice in order to enable it to be reopened for public worship in the shortest possible time. The programme at the same time included the reconstruction of the lower part of the roof which was to be covered with a temporary flat roof in reinforced concrete, pending the provision of the funds necessary for the rebuilding of the outer roof.

The restoration of the roofs, covering the north and south aisles to the nave of the cathedral are already completed as far as the transepts, but these are at present concealed by the corrugated iron temporary roofing, which is to be retained until the main roof is also finished as a protection against falling *débris* which might cause damage. The Administration of the Ministry of Fine Arts has adopted, for the restoration of these roofs, a system of construction in reinforced concrete in order that there shall be no repetition of the fires which destroyed the old work.

It may be noted that the wooden roofs of several other cathedrals in France have been replaced by cast-iron or reinforced concrete.* The system of construction adopted for the Cathedral of Reims was used for the first time in the new roof at the Church of St. Jacques, in the same town. It consists of a light framework, built up of "planks" (*planches*) of reinforced concrete, pre-cast in the cathedral itself, and of such dimensions and weight that the assembling of the pieces together can be done by one or two workmen without mechanical aids, or lifting machinery of any kind.

These "planks" of reinforced concrete are cast on the spot in simple wooden boxes. Tenons and mortices are made as required for the assembling of the "planks" together. The same moulds being used for all the "planks," permits as many to be cast as are required, without any delay in execution, as the moulds are removed as soon as the casting is completed. As a result of this method there is a very considerable saving in "shuttering," while, at the same time, the adoption of one standard section for these "planks," all of which have the same dimensions (4 cm. by 20 cm., or approx. 1⅝ in. by 7⅞ in.) makes it an easy matter to cast any length required. Also, these reinforced concrete planks can be either slightly curved or quite straight as desired, which allows for all possible combinations. The assembling of these "planks" of reinforced concrete is carried out by means of the tenons and mortises which are blocked out in the moulds when casting, and the different pieces are secured, in the erection of the truss, by keys and purlins, &c., so arranged as to secure lateral rigidity and vertical continuity.

This method of construction, by reason of the multiplicity of the joints, allows not only for the easy removal and replacement of any one "plank," but also provides a requisite amount of "play" at each joint, and thus overcomes the difficulty of the considerable expansion and contraction which always occurs in works of some considerable size. Some of these junctions may, if desired, be "sealed" either with plaster or with cement mortar. The joints in the longitudinal line of each truss are free, to allow for expansion and contraction.

Tests made on a single truss of the roof of the Church of St. Jacques showed that an evenly distributed weight of .12 tons was safely supported on the two *arbaletiers*.

A similar method of construction has been used for the roofs over the aisles of the cathedral. This advantageously replaces the old roof-trusses in wood of heavy and inconvenient design which made it difficult to obtain access to the inside of the roof over the vaulting below.

The new reinforced concrete roof has been so designed as to be entirely separate from the masonry of the vaults below, and the obstruction caused by the old massive tie beams, plates, &c., now no longer exists as the principals, purlins, and rafters are all in the same plane.

The slight thrust is evenly distributed between the flying buttresses by a long horizontal beam which externally forms the gutter at the springing of the roof.

With this method of construction, made up as it is of a large number of elements" of small section, it is necessary so to arrange the roof construction as to make each piece of it do the requisite amount of work in order to preserve the necessary resistance of the whole to pressure—the involuntary result is that the design reminds one considerably of the construction of a mediæval roof in wood, where each "*chevron portant fe mé*" was complete in itself and added no weight to the real "trusses," which served only as "stiffeners" at certain intervals (*l'étrésillonnement longitudinal de l'ensemble*).

The design approved by the Ministry of Fine Arts to give effect to the intentions of Mr. Rockefeller (in his gift for the reconstruction of the roof over the nave), is also inspired by the ancient arrangement. One could not dream of reproducing in reinforced concrete the ancient carpentry of the fifteenth century. This would have loaded the walls with a weight three times greater than that of the old wooden roof.

But we trust that the new roof, entirely in cement, will not weigh any more than the roof it is designed to replace; it may even weigh rather less when completed. And, notwithstanding the great number of pieces, the total cube of the reinforced concrete employed does not exceed one-third of the cubical contents of the old wooden roofs. At the level of the parapet of the external walls there will be a *plancher de service*, inside the new roof, which is supported by a series of arched trusses, built up of the reinforced concrete "planks" described.

The main roof itself will be composed of twenty three similar trusses. This work in cement [? reinforced concrete] will be not less than 19 metres (about 62 ft.) in height from the extrados of the vault to the ridge, or about the same height as a six storied house in Paris.

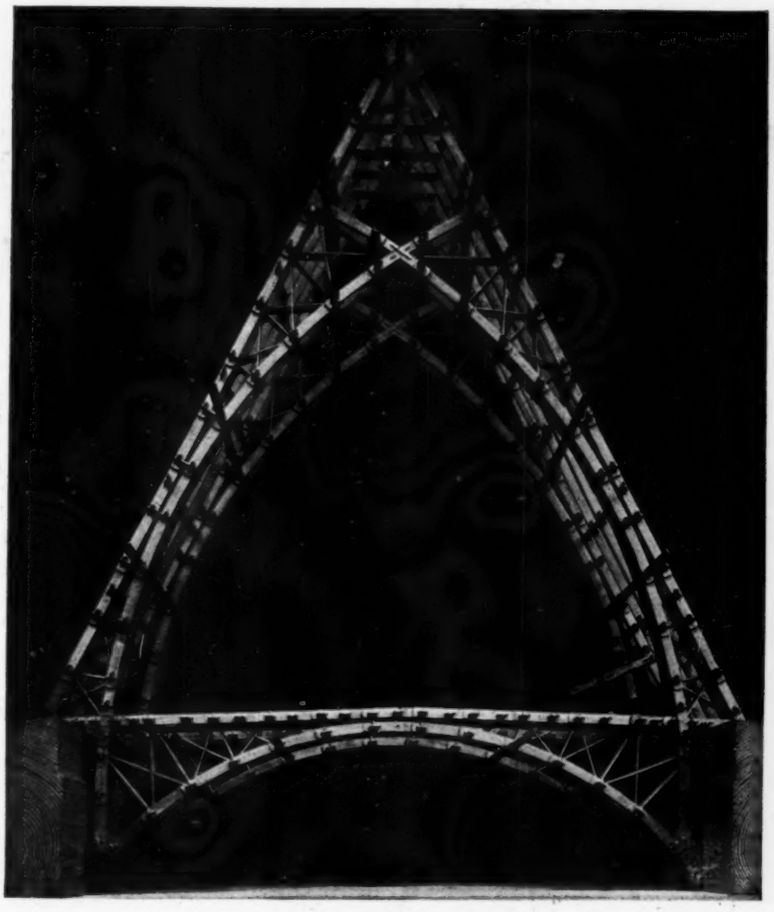
For reasons already explained above and on account of the small section of the "planks" of which they are built up, the trusses have been placed at frequent intervals, being only about 7 ft. 9 in. (2m. 4c.), centre to centre, so that to each bay of the vaulting below (measuring about 23 ft. 6 in.) there are three roof trusses.

The new roof will be covered externally with lead about $\frac{2}{3}$ in. (3 millimeteres) thick, and in sheets some 9¾ ft. long by 2 ft. wide, laid on battens, about 4 in. by 1 in., placed about 3 in. apart. The old roofing was so arranged to prevent trouble from condensation of moisture on the inner surface of the lead, due to changes of temperature. The lead sheets will be run in trays of sand, as was done in mediæval times, and not in laminated sheets as is the modern practice. The old ventilating dormers, with their ornamental lead finials, the ridge cresting of fleur de lys alternating with trefoil ornaments, similar to that which previously existed before the Revolution, are also included in the programme set by Mr. Rockefeller.

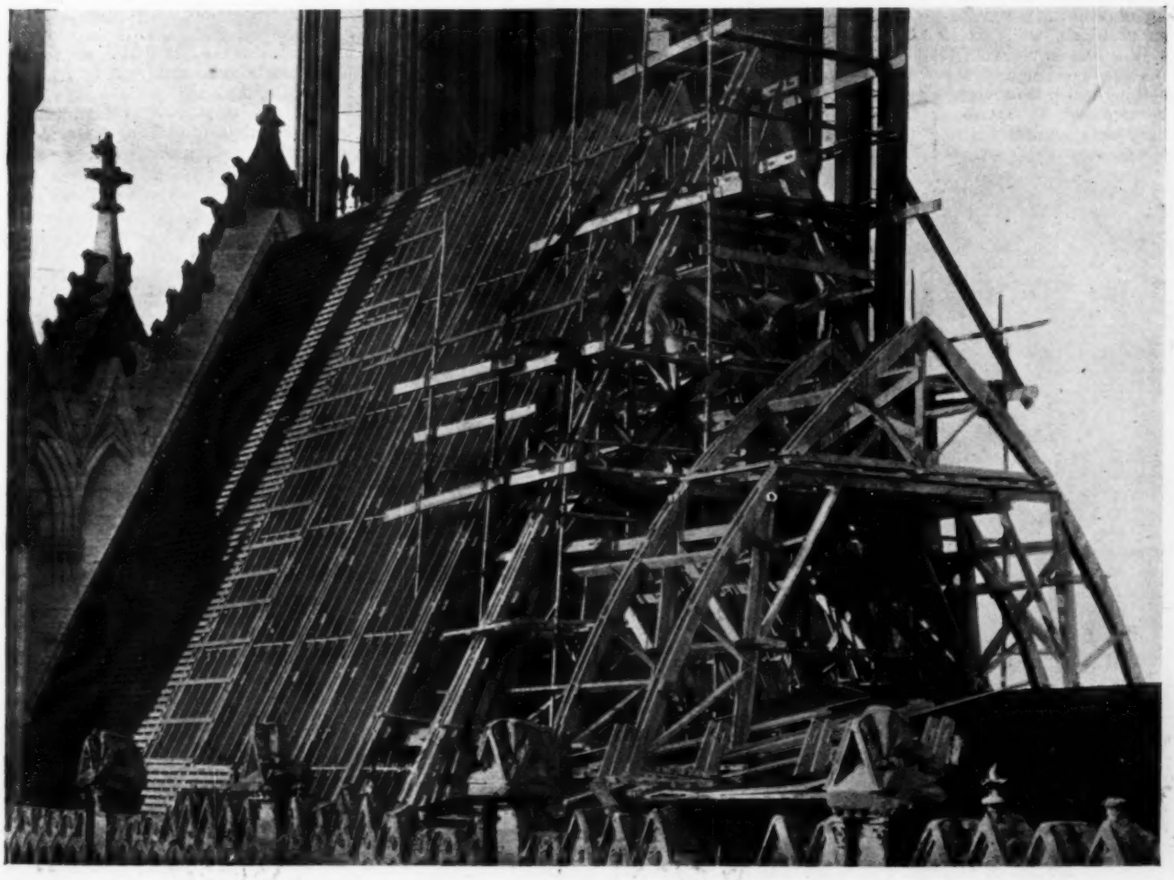
But as regards the completion of the roof over the transepts and the choir and the reconstruction of the angels' flèche (which are also proposed as part of Mr. Rockefeller's donation), it is not possible to think of this until the high vaulting of the choir has been repaired and the south-eastern pier of the crossing has been shored up and rebuilt, in order to make good the damage caused by a heavy shell. These works of reconstruction represent an expenditure estimated at between four and five million francs, and the difficulty in providing this sum, together with the time required for carrying it out, will mean that several years will elapse "before the completion of the work due to our generous donor can be put in hand."

Monsieur Deneux concludes his account by expressing the appreciation of his fellow countrymen and especially the "Remois" to Mr. Rockefeller, not only for his gift, but for the delicate manner and opportune moment in which his plan was put forward. He admits, with evident regret, that such things as the restoration of the stained glass windows—even where possible—the replacement of "indispensable" sculptured ornament and figures and many other things, must be left to a somewhat dim and distant future,

*The Cathedral of Chartres has a roof constructed in cast and wrought iron. The Cathedral of Laval has one constructed in iron. The Cathedral of Laon has a roof in iron and reinforced concrete. The flèche at the Cathedral of Rouen is now in cast iron, and in the Cathedral of Clermont-Ferrand the roof "trusses" are in masonry with iron rods and braces.



MODEL SHOWING REINFORCED CONCRETE ROOF PRINCIPALS AND "DECKING."



GENERAL VIEW OF NEW REINFORCED CONCRETE ROOF OVER NAVE, IN COURSE OF CONSTRUCTION.

The Restoration of Reims Cathedral.

S

AN AMERICAN VIEW OF ENGLISH ARCHITECTURE

Interview with Mr. Thomas Hastings.

WHEN Mr. Thomas Hastings was recently in London on business in connection with the great new building which is now being erected on the site of Devonshire House, from the designs of himself and Professor C. H. Reilly jointly, I had the pleasure (writes a correspondent) of meeting him at the offices of Messrs. Holland & Hannen and Cubitts, who are the owners as well as the builders of the Piccadilly block. I asked Mr. Hastings if he would give me, for the benefit of *The Builder* readers, some information about the methods employed in erecting this great structure, which has arisen with such astonishing rapidity on the site of Kent's famous building, but he politely declined. "I don't want to be accused of 'boosting' American methods," he explained, with a smile. "Not, of course, that it would be necessary to do any such thing, for the credit of getting ahead so quickly with the work belongs entirely to the contractors. And here I should like to say how much pleasure it has given me to work with Messrs. Holland & Hannen & Cubitts. I have never had a more pleasurable experience, which is probably explained by the fact that in this case the builders, who are also the building owners, have spared neither expense nor effort in turning out a really first-class building job—materials and craftsmanship are alike excellent—and no architect could desire more enthusiastic and competent co-operation than I have had in connection with the building of the new Devonshire House."

Finding that Mr. Hastings was firmly, though courteously, opposed to saying anything about Devonshire House, I asked him if he would give me his views on architecture in general, and he readily complied. "Modern architecture," he said, "seems to have two opposite tendencies—one is in the direction of archæology, and the other in the direction of Bolshevism. Neither, in my view, affords a reasonable way of salvation. Archæology of itself can never provide a solution of modern problems, while as to Bolshevism, why, it's just like having dessert before the oysters! No good can come of this reaching out after something which is only vaguely, if in any degree, comprehended. Development has to come slowly and naturally along traditional lines." Architectural development, like the progress of the human race, should be a matter of evolution. A useful analogy may be drawn between architecture and clothes. Now, generally speaking, we don't revert to the fashions of hundreds of years ago, nor do we worry about inventing something strange and new in the way of costume. We just carry on with the fashions we inherit from our fathers. Changes occur, of course, but they occur naturally, and so it should be with architecture."

I asked Mr. Hastings what he thought of the condition of architectural art in England, and whether he could see in the new buildings of London any evidence of American influence, which some observers claim to detect. Dealing with the first part of the question, Mr. Hastings referred to the influence of the Gothic Revival, which, in common with the majority of present-day students of architectural history, he regards as a reactionary movement. "Your Gothic Revival," he said, "broke into your Classical tradition and, in my view, hindered the development of a modern English architectural style. I believe that the progress of English architecture is best to be secured by taking up the threads of the Early Victorian tradition. I don't believe that any progress will be made on mediæval lines. Modern Gothic universities, to my mind, are an anachronism. As to American influence in your architecture, I see little trace of it. Your modern work continues to be robustly individualistic, and for much of it I have the warmest admiration. You have many architects of genius—we Americans greatly admire, for example, the work of Sir Edwin Lutyens, whom we had the pleasure of welcoming recently in New York. Like most countries, however, you have your bad patches, but you know these better than I do. What I feel about some of the recent buildings I have seen is that they are not entirely practical. Take this room," said Mr. Hastings—(we were sitting in the board room at Messrs. Holland & Hannen and Cubitts' premises in Gray's Inn-road)—"It has a certain area, and the first requirement is an adequate supply of natural light. To ensure this it is necessary to discover the correct size and form of window opening; but is the problem always approached from this point of view? Are we not too often tempted to think in terms of elevations and 'motives' rather than in terms of practical requirements? I am not surprised to find that your Regent-street shopkeepers objected to the original design for the rebuilding of the Quadrant. Wide piers and comparatively narrow arches, however effective they may look, are not a practical solution of the shop-front problem from the shopkeeper's point of view. As architects, it is our job to interpret practical requirements in the terms of architecture. Mind, I am not criticising English architecture—merely a certain attitude of mind which is known to exist among architects. The temptation to think primarily in the term of anything but practical requirements is one that has to be resisted and subdued. But to return to English architecture: For much of your work, as I have already said, I have the sincerest admiration. Your domestic work in particular is excellent—to-day probably of an even higher standard than it has ever reached before."

Questioned on the subject of present-day architectural education, Mr. Hastings said he believed it to be on right lines. "As you know," he said, "we have taken up Beaux-Arts methods whole-heartedly in the United States, with encouraging success. Your schools, I believe, are following on somewhat similar lines. Education is the one vital factor in architectural progress. I am a great believer in university training. Architectural courses should be provided in all the universities. There should be one central authority responsible for general policy, and upon this all the schools of the country should converge, all fired with the competitive spirit. The friendly rivalry of the universities engenders keenness and promotes good work. The healthy state of architectural education," concluded Mr. Hastings, "gives us good reason to expect great things of the future."

Detail of Carved Panel on The Mary Sumner House, Tufton-street, Westminster. *See p. 54.*)

MR. CLAUDE FERRIER, F.R.I.B.A., Architect.

THE PARIS EXHIBITION

The Paris Exhibition of Decorative Arts is bound to exert a wide influence, consciously felt by those who were impressed by it, and unconsciously exerted even on the scoffers, for the lessons of the Exhibition are too important to be neglected. Outstanding features of the Exhibition are the great advance made by France and certain other European countries in the technique of utilising and treating various materials whose artistic and practical possibilities have for years been dimly felt but by no means fully exploited, and the extraordinarily satisfactory result obtained by the collaboration of artist craftsmen with the designer who is determining the general character of a building without naturally being competent to extract the last ounce of expression from craft work which is in itself a life-time study.

Whatever criticisms may be levelled at the tendencies of French design as exemplified in the Exhibition, no one will deny the thoroughness with which any type or character of expression in design is worked out in complete harmony down to the smallest detail. This is undoubtedly due to the fact that the French master craftsman is not only a superior technician, but a sensitive and capable artist, one who is creating and experimenting on his own account, and who is in a position to offer fresh possibilities to the architect and stimulate his imagination; a contrast to what is so often the case in this country, where the architect who desires effects beyond the ordinary must first furnish an enormous contribution of effort, and often personal expense. In this state the profession has been much to blame, for copyism of the antique has been so long the rule that craftsmen cannot be blamed for having concentrated almost entirely on reproduction work and the manufacture of readily acceptable "cliches." Perhaps a remedy will lie in an immediate recognition of the possibilities of collaboration, beginning with the training in architectural schools, for a minimum period, of those who are studying the crafts; for in this way the principles of design may be absorbed, —an indispensable preliminary to any general all round improvement.

INTERNAL VIEW OF NEW REINFORCED CONCRETE ROOF OVER NAVE, IN COURSE OF CONSTRUCTION.

NEW REINFORCED CONCRETE ROOF OVER NORTH AISLE

The Restoration of Reims Cathedral.

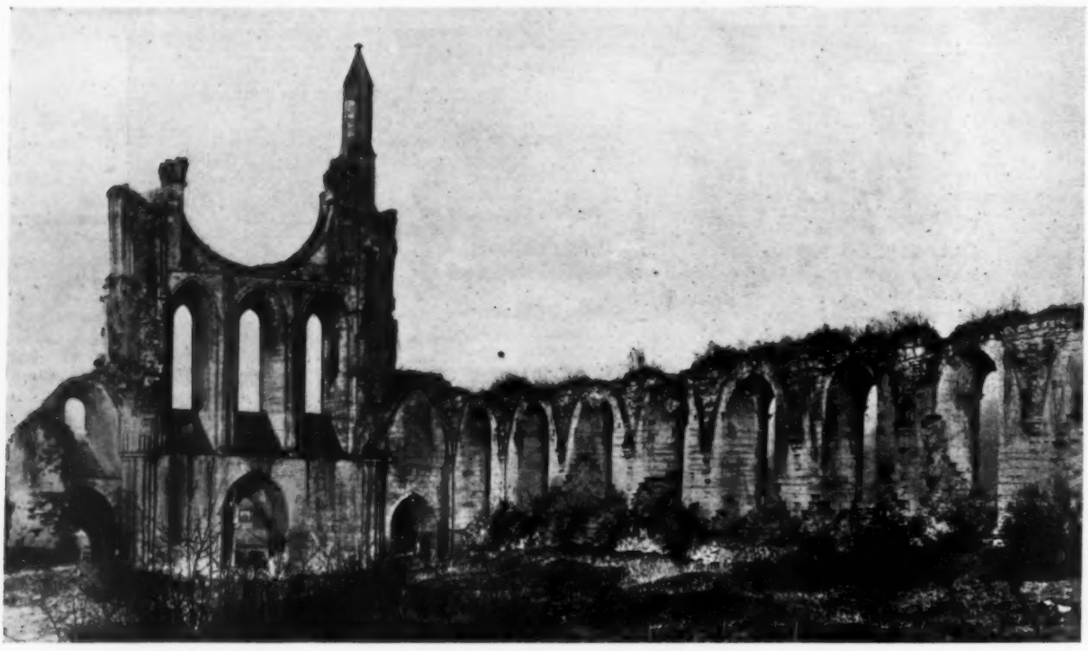


FIG. 1.—**Byland Abbey: Interior North and West Walls.**
Showing weed-grown character of the ruined Abbey before excavation.

BYLAND ABBEY, YORKSHIRE

BY WILLIAM HARVEY.

THE works of excavation and discovery which have been undertaken by H.M. Office of Works, Historic Buildings Branch, in connection with the ruins of several great abbeys erected in England for the services of the Cistercian Order have brought to light a wealth of detail concerning the growth of early Gothic style from the older Romanesque manner of building.

Pledged by the severe rule of their Order to avoid superfluity of ornament in architecture as well as most other worldly luxuries, the Cistercian Fathers at first obediently contented themselves with the plainest and most utilitarian forms of building, and a great part of the interest and charm associated with the study of their progress in architectural design is due to the experimental nature of their gradually increasing use of ornament as years passed, and their founder's instructions came to be interpreted less rigidly and in a more humane spirit. Byland Abbey represents an intermediate stage in the increasing elaboration of architectural forms, and enough of its walls and pillars remain, though in a fragmentary state, to show that the great church was designed as a whole in accordance with a highly articulated scheme of architectural massing and a well-considered and consistent arrangement of decorative detail.

Between the foundation of the neighbouring Cistercian Abbey of Rievaulx in 1131 and the building of the church of Byland in 1177, late Norman had passed into a transitional style in most parts of the country, but at the church at Byland, instead of the period of transition revealing itself in a patchwork of different forms of architecture, the design is singularly regular and consistent throughout all parts of the building. The struggle between conscientious adherence to the law of the Cistercian Order and the desire for greater richness of ornament seems to have been settled at an early stage of the proceedings, for there is little evidence of alteration in the scheme as the work proceeded, except that the lower parts of the bases of the clustered shafts are simple circles on plan and may have been intended, when first planned, for the support of simple cylindrical pillars.

In the nave of Rievaulx, built some years earlier, this battle between artistic and monastic considerations seems to have produced an alteration in the design when the work was in progress, for the great square pillars are splayed on their two front angles some 6 ft. above ground level as a sort of happy afterthought to permit of a slightly more elaborate treatment of the capitals and the voussoirs of the arches they

FIG. 2.—Turf at Floor Level has been laid down where no original paving remains. Wall to left of foreground has been repaired. State of ruin is seen on right.

FIG. 3.—**Part of Capital of Clustered Shaft recovered from debris by excavation.**
Traces of colour decoration remain upon moulded stone placed in position beside fragment of cap. Loops across sunk veins of carving are a special feature of Byland carvings

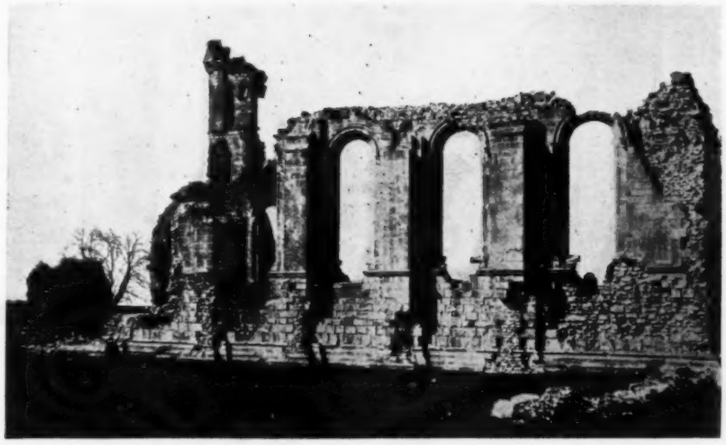


FIG. 4.—**East End of Abbey Church after excavation.**

Where necessary, stonework has been repaired and jointing made watertight by special process of hand-grouting, tamping, and pointing.

support. In contrast to the simple cavetto-moulded string-course capitals at Rievaulx, the moulded, carved and coloured capitals at Byland are luxurious indeed, and apart from any comparisons with former work or any reference to the law of the Cistercian Order, they are exceptionally fine works of art on their merits. They combine refinement of curve with a restraint which allows just as much naturalism to the growth of the stony foliage as will contribute to the proper emphasis of the structural function of the capital, and no more. The swift precision of the carving regarded from the point of view of technique is also admirable, and although there are many interesting minor differences of pattern throughout the church, conformity to a sane artistic and structural convention is noticeable throughout.

A peculiar feature recurring through the Byland carving is a small bridge of stone left standing across the deeply-cut sunk vein of the conventional foliage and telling as a small bar of high light across its dark shadow. This small detail is undercut and fragile, but the turns of the leaves at the corners of the abacus are kept solid and massy to give an impression of supporting strength. In this respect the Byland caps are more truly architectural than many later caps containing naturalistic or elaborately-wrought foliage, beautiful in itself, but less perfectly subordinated to its purpose.

Although the capitals of the wall shafts which still remain in position on the aisle walls have been exposed to the weather for centuries and have had their surface scoured by rain and hail, others have been recovered by excavation from the piles of debris, and these not only exhibit the crispness of the carving but preserve traces of colour decoration in pink, white, red and black. At what time this pigment was first added would be difficult to determine, but it is quite probable that colour was kept in mind from the commencement of the design.

Coloured and glazed tiles formed the floor of the church, and several beautiful fragments of the flooring have been recovered in their proper positions during the excavations. A bed of clay, which yielded somewhat and dented under the impact of falling masses, contributed to the preservation of the tiles, when they were buried with heaps of ashlar and rubble at the time the building was destroyed. Instead of the glazed terra-cotta of the tiles being smashed to atoms, each tile was forced bodily into the clay bed, and so remained practically uninjured, although, of course, the arrangement of the pattern suffered by being bent into an incongruous series of mounds and hollows under the unequal pressure of the tons of fallen walling and vaulting material. Among the first tiles to be discovered, those which had the glaze worn off predominated, but, as further excavations were made, many tiles coloured with yellow and green were exposed with their glaze intact, or only slightly worn. The patterns were generally bold geometrical designs formed with a few simple units built up to repeat in all directions over the floor surface, with borders at intervals, and a few splendid rosettes, composed of several concentric rings of tiles specially made to radiate towards the common centre.

In shape the tiles are only approximately regular, having been cut out of clay slabs with a knife, probably guided by a template held pressed against their surfaces. By purposely holding their knives askew, the old tile-makers made the underside of each tile smaller than its top, so that it could be pressed easily into its mortar bed, which would squeeze up into the joints and fill them without showing too much mortar on the exposed floor surface. Sometimes, for fun apparently, the tile-makers preserved tiles which had been trodden upon by cats and dogs while the clay was wet, and the paw marks are still recognisable under the glaze. Beside these details of ornamental finish, the excavations have also revealed the greater part of the ground plan of the cloister and the lower parts of the walls of many of the monastic buildings, which were previously completely hidden by formless mounds of weed-grown rubbish. It is now possible to follow out the life of the community and to recognise the suitability of their planning for their own needs.

Near the west end of the church were the Lay-Brothers' quarters, with a large chamber provided with a central row of pillars to support a vaulted ceiling, which in turn, presumably, supported the floor of an upper story. To the south of the cloister lay the warming house, the kitchen and the Refectory; and to the east were the Chapter House, Parlour, Vestry and Library. Remains of the stair which served for access by day from the cloister to the Dormitory on the first floor have

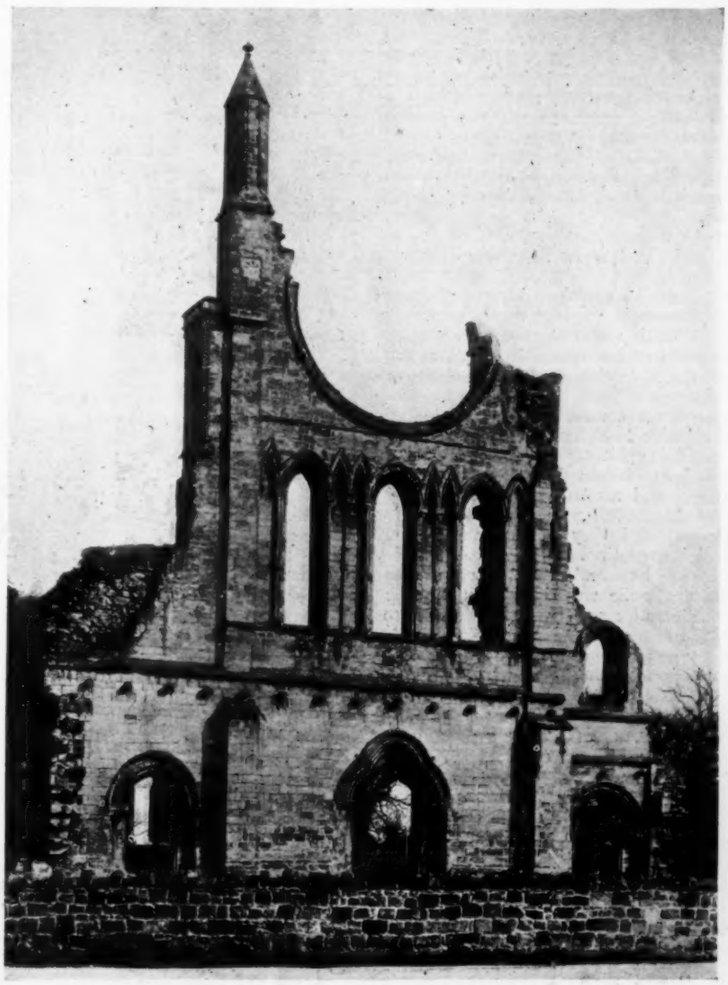


FIG. 5.—**Byland Abbey: West Front, showing Exterior before repair by H.M.O.W. Historic Buildings Branch.**

A great deal of superficial pointing has been applied to joints of stonework at some former repair.

also been found, and in the south transept are traces of the night stair, which formerly gave access from the Dormitory directly into the church for the use of the monks at their nocturnal services.

The day stair and night stair are found in many abbey ruins, often upon a sumptuous scale. Judging from the size of the remaining stones, the tread of each solid masonry step was about 15 in. wide, and the width of the flight large in proportion.

Rievaulx and Byland Abbeys were both provided also with flights of steps semi-circular on plan, leading down from the church at the junction of the south transept with the south-western aisle to the cloister walk some few feet lower in level. Such semi-circular flights, with the steps arranged to conform to the slope of a conical surface, are found in Crusader Gothic in some alterations to the early Christian Church of the Nativity at Bethlehem. Their use by the early and comparatively strict Cistercians at Rievaulx and Byland is comprehensible, for they produce a maximum of architectural effect without elaborate building.

The main drain of the Abbey has been discovered at a point near the cloister, and as further excavations are made it is probable that more evidence as to the nature of the water supply and sanitation of the Abbey will be revealed. From what has already been brought to light at Rievaulx and Byland, it would seem that the sanitary state of these English abbeys in the eleventh century was very considerably in advance of present-day monasteries of the Greek church at Mar Saba, the Wadi Kelt, or the plain of the Jordan.

The water courses, well lined with masonry, which served to receive and remove the sewage, were calculated to occasion comparatively little nuisance, since the sites for Cistercian abbeys were generally chosen in positions where supplies of running water were available.

In addition to the excavations which have resulted in such a remarkably rich yield of archæological data, H.M. Office of Works, Historic Buildings Branch, has strengthened and preserved the ruins without impairing their appearance.

Compared with the high buildings at Rievaulx and Tintern, where some extraordinary structural problems had to be faced in arresting the impending collapse of large and heavy masses of walling, the safe custody of the ruins of Byland was relatively simple. Only two parts of the ruin still stand to the height of the old clerestory, and although signs of movement and an overturning tendency exist, these destructive actions are not so pronounced as to demand heroic measures of repair. The greater part of the building only stands to the height of the haunch of the aisle vaulting, and most of these fragmentary walls are small enough and upright enough to be stable, provided they are protected from piecemeal disintegration.

Some critics have affected to see in the application of tensile reinforcement to a ruin a pernicious practice and have endeavoured to circulate a rumour to the effect that H.M. Office of Works is indiscriminately treating every monument by means of wholesale reinforcement. Nothing could be further from the fact. Each ruined building is examined on its merits and is strengthened by means appropriate to its needs, the actual measures being devised and adapted to suit each case.

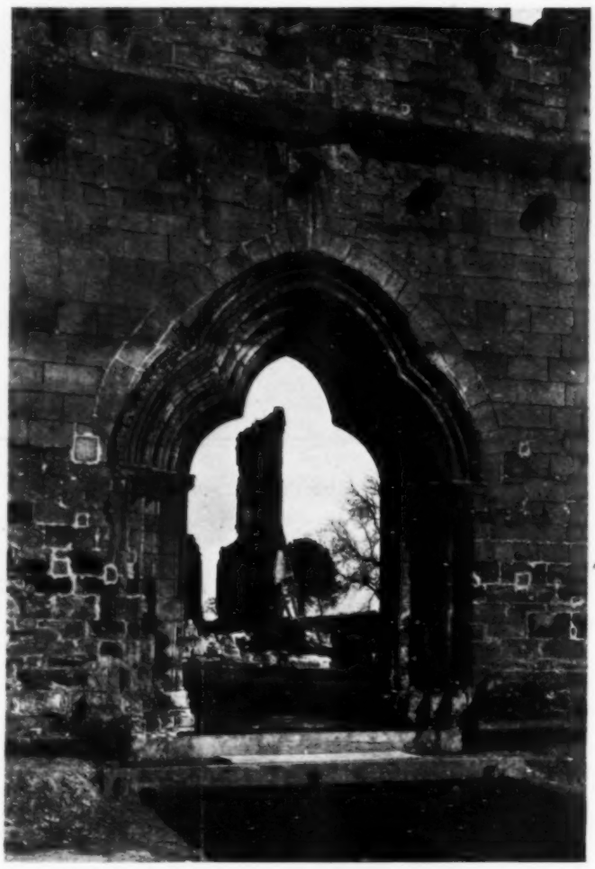


FIG. 6.—**Byland Abbey: West door of Church from Exterior.**
Ugly superficial pointing, applied in some former repair, should be compared with careful work shown in Fig. 2.

At Byland Abbey the defects are often due to purposeful removal of ashlar facings from the base of the walls, either at the dissolution of the monasteries, or for building purposes since that date. Mortar, originally of poor quality, whose feeble tenacity has been still further reduced by exposure to wet and frost, is also a source of weakness, particularly in the wall tops, where the swelling roots of trees and bushes have also tended to burst out the ashlar stonework and disintegrate the interior core of rubble. One troublesome defect is a tendency, in some parts of the masonry, for the stone itself to split and weather away in powder.

A great part of the church building was erected in a sound local limestone, but some of the monastic buildings contain blocks of stratified sandstone bedded with its laminations vertical, and these exhibit the flaking and splitting which normally follows this bad arrangement. Where strength has been impaired through exposure to the weather, the decayed mortar and dirt is raked out of the joints and the old roots and weeds are removed. The stones are then cleaned and the cavities grouted with cement mortar, which is tamped solidly in by hand with special tamping tools until it fills every cranny. The pointing of lime mortar, which is added to maintain the colour effect of the old wall, is made to harmonise with the weather-worn appearance of the ruin by the simple process of spraying the mortar with clean water as it sets. By this means the pebbly washed sand, with which the mortar is mixed, shows upon the surface of the joint and the glaring effect of newness is done away with.

The splendid discoveries of tiles in different parts of the floor of the church raised a problem in maintenance. The tiles were loose when found, having been broken free from their bedding of lime and their under-bed of clay by the impact of the falling masonry and, in accordance with the policy of leaving the old work alone as far as possible, it was at first hoped that the tiles might be retained in position untouched. Experience soon proved, however, that the souvenir hunter had to be reckoned with, and a method of re-bedding the tiles on a concrete base was ultimately employed. The pattern of each patch of tiles was therefore drawn out, full size, and templates were made to guarantee that they would be reassembled in their correct positions. They were then lifted up and reset at their proper level upon a sound base of cement concrete, the old arrangement being faithfully kept, and even the thickness of the joints regulated, by confining each group within the bounds of its proper template.

[Accompanying photographs are reproduced by permission of H.M. Office of Works.]

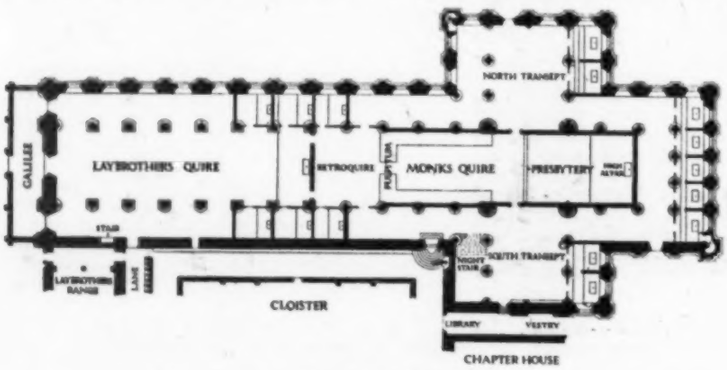


FIG. 7.—**Plan of Byland Abbey.**

NOTES ON AMERICA: I.—NEW YORK

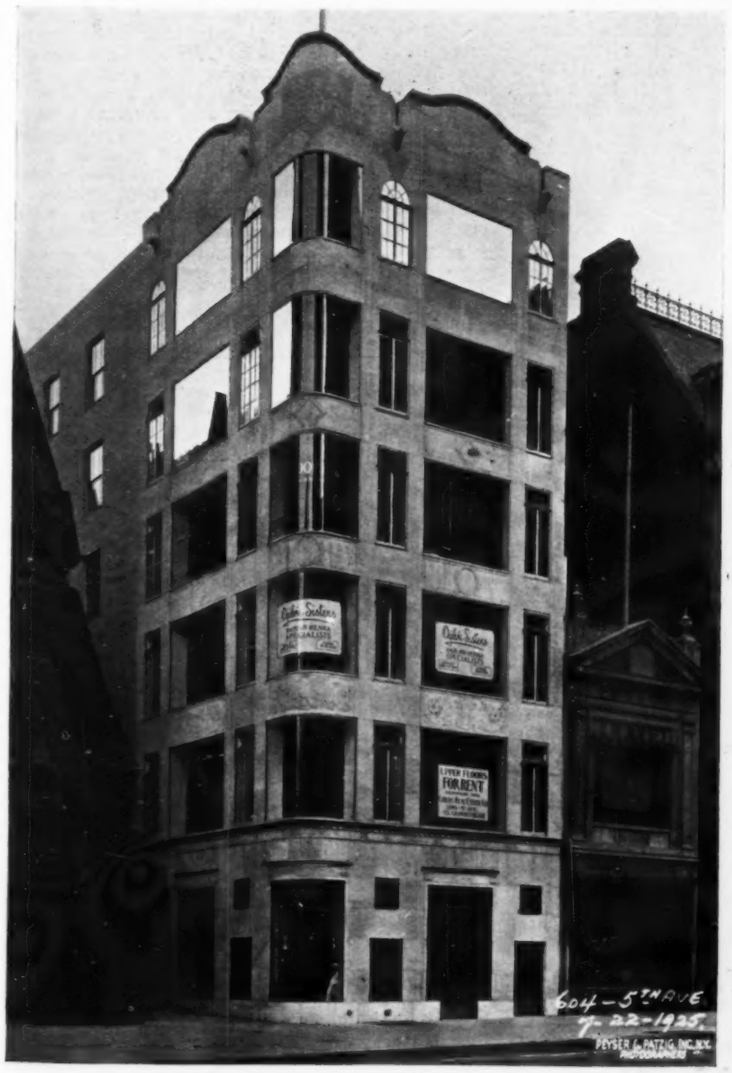
BY F. E. BENNETT, A.R.I.B.A.

THE approach to New York by sea for the first time provides a fine thrill. Although everybody has seen pictures of the famous skyline and heard a lot about it, seeing it for the first time is a great experience. Even New Yorkers returning home after a journey abroad will say they get a "kick" out of it.

This effect is produced by the "down-town" buildings; a bunch of giant skyscrapers, the most huge in the country, closely grouped in a small area. The visitor is told about them on the ship, and he prepares himself for the great sight.

At first he sees them like a great jagged rock sticking out of the horizon, but when he sees them close it is a very different thing. There are thousands and thousands of windows, the greatest variety of shapes, colours and sizes, and a ceaseless drone of traffic humming out from the roots of it all. The great buildings shoot up almost from the edge of the water, smaller ones first and then the bigger, and with the stately Woolworth tower, the highest one of all, stretching up to a dizzy height equal to about twice the height of St. Paul's. A new member is just being introduced; a great squarish building for the Telephone Company, faced with yellow-brown brickwork and standing like an enormous bully a little way off from the rest, very conspicuous and bare among particularly small and humble neighbours.

Having negotiated the customs and duly arrived on the island, life becomes a very complicated affair. A host of new impressions assail the stranger; a hundred-and-one things are found to be quite different from what he is used to in Europe, and everybody talks in a way which is a little disconcerting. After a time he finds there are a few things to learn before he becomes effective—before he can achieve any sort of results. If, say, as an Englishman, finding the atmosphere rather dry and dusty, he wants a drink, it isn't sufficient for him to know he can get it in a chemist's shop and it can only be a soft one. He must know beforehand what he wants, and be able to ask for it in a clear voice, and with a confident manner. If he can't, he may never be served. Again, if he wants to be directed anywhere, he must not start: "I beg your pardon, sir, but would you be so kind as to tell me," &c. By the time he has said this, the man will have passed on. The actual method is to catch his victim swiftly, and say, for instance, "Where's Broadway?" He will answer him in "blocks," "go straight ahead so many, and so many to the left or right." Owing to the gridiron plan it is so easy.



A New Building on Fifth Avenue.
Mr. J. VAN ALLEN, Architect.

While these preliminaries are being overcome our visitor finds that the cluster of big buildings he saw on arrival are on the south end of the long-shaped island—Manhattan Island—on which the busiest part of New York exists. He finds that the city is not all skyscrapers, and that in fact the four- or five-story building is more the usual thing. Away from the south end, northward along the island, many interesting things happen. There is Greenwich Village, where the artists live; Chinatown, the Bowery, Chelsea, the Flatiron Building, tall and shaped like a wedge; the Metropolitan Tower, another skyscraper; Fifth Avenue, stretching ahead in all its glory; the Public Library, the pride of all New Yorkers; 42nd Street and its myriad of office workers; the Bush Tower, new and beautiful; Broadway, with its theatres and illuminated signs; Central Station and Pennsylvania Station, built on a mammoth scale; Park Avenue, a double line of expensive apartment houses; Fifth Avenue with fine shops and millionaires' houses; Central Park, Manhattan Island's one lung, showing here and there in blotches the rock which forms the main strata of the island and holds up the heavy buildings.

Office Buildings.—Although the very tall buildings are nearly all "down town," around Wall-street, they are not the only tall ones. There are quite a number "up town," cropping up in various places, but not quite so big. Among them the office building is the unit, usually a fourteen to sixteen story, plain-looking affair, with more window than wall surface and a heavy Italian cornice made of metal at the top.

Now, the ordinary person using one of these buildings is very much concerned with the lifts, for whatever floor he wants above the ground he must get there rapidly and with ease. If he cannot, the whole building is a failure. In no case, excepting fire, will he mount by the stairways. This means that the lifts must work continuously, smoothly, quietly, quickly, and never get out of order. In addition, they must be organised so that in no case does a person have to wait more than a few seconds. And the remarkable thing is that all these things are achieved and one can ascend to fifteenth-floor offices almost anywhere with only the smallest sense of fatigue. The thing is done by careful adjustment of signals, timing of apparatus, and much study of past experience. The lifts are generally ranged on one or both sides of a long hallway which is approached on the ground floor directly from the side-walk. On the upper floors this hall is repeated and offices lead from it. Sometimes when one firm rents a whole floor the lifts open, as it were, directly into their offices. There are no lift lobbies, as required by the English law.

The top floor of the building is let for the highest rents. The entrance hall and other halls and corridors are finished simply with terrazzo flooring, marble, travertine and plaster walling, and they are clean and sanitary, and give a great sense of directness and efficiency. There are no hall porters or men opening doors; the only person with a permanent job in the main hall being the starter of the lifts. He controls the system, and he starts each lift off by clicking a little instrument The lift attendants never leave their cars.

One particular building looked at in perspective has some resemblance to a slice of cake. The front is comparatively rich with ornaments, while the sides are as flush as if the whole thing had been cut out of a slab with a knife. A steel fire-escape zigzags up one wall. The whole is surmounted by a large water tank, looking like a fat slug strutted high above the roof. One of the unit type is the office building at 101, Park avenue. By some strange circumstance most of its floor space has come to be occupied by architects, so that it is now known everywhere as the "Architects' Building."

Other Buildings.—The hotels and apartment houses are remarkable for their bulk, even if for nothing else. The Roosevelt, the Statler, the Commodore, and others have a great number of rooms each with individual bathroom, and highly developed arrangements for service.

On the main floors large space is given over to expensive looking lounges, public rooms and restaurants where non-residents can come and go as freely as the residents. It is remarkable that flunkies are being introduced into the more expensive of these hotels. A number of interesting elevations appear on these buildings. Messrs. Geo. B. Post produce dignified effects by adapting Wren and Georgian work; the Vanderbilt elevation in the Adam manner done in terra-cotta is cultured looking; the Biltmore in Italian Renaissance looks attractive, and the older hotels by French architects look like Beaux-Art plates. Strangest of all is the new one, the Shelton, a great mass of yellow-brown brickwork, and perhaps one of America's finest achievements in architecture. Here again in the hotels the lifts are vital.

Like London, with its own particular kind of shops, and Paris with its particular kind, so New York, despite its craze for adaptation and imitation in other directions, has its own characteristic kind of shops. It is not quite an easy thing to describe that character, but it is safe to say that the street architecture of the upper part of Fifth-avenue, where the women's shops are situated, is as good as anything of its kind in the world. Lord & Taylor's and some other big stores are very successful indeed. While the big buildings are often so well designed, the smallish fronts for their part display some excellent solutions of the shop front problem, and incorporate very beautiful designs in ornamental metal work and carved stone. There is a tendency to considerable restraint and to reduce the cornices and other projections, as can be seen particularly in the work of Mr. Van Allen, who has gone so far as to omit mouldings entirely, and to bring his glass as near the outer face of the wall as possible.

The feeding places for the smaller wage earners are run on a different system from the European ones. A vast multitude of people swarm out of the office buildings all at about the same time of the day, all requiring to be served immediately with a meal. There are so many of them that under the normal system of service of, say, Messrs. Lyons, only about half would get a meal. To overcome this, waiters are dispensed with, and each person serves himself; foods are displayed on long shelves. You take what you want, carry it to a table, and pay as you go out. The thing works splendidly, and everybody seems satisfied.

Entrance to a Fifth Avenue Shop.

It works so well that many people feed this way when there is no hurry and no crowding. They get the meal finished with, and then they can be away and doing something else. The normal type of this self-service restaurant is called a "Cafeteria," but there are a number of variations of it. The slot-machine process is one. Another is the Lunch Room where customers stand up and eat off a shelf, and when they have finished they just inform the cashier at the entrance how much they owe, and pay it, their honesty in the matter being relied on completely.

Railway Stations.—The two railway terminals—Pennsylvania and Central—are important features of the city, and a great change from anything we know in England. The idea seems to be to provide accommodation for a vast number of people, and also to make the stations large enough to meet the demands of the city when it has grown bigger than it is now. The spirit of service which causes a railway company to build such stations, and the spirit which seems to underlie most of the organisation, is quite remarkable. These two are planned on a system of three units—waiting room, main hall, and the track platforms. The building is entered much in the same way as a departmental store—through small swing doors which stretch in a line across the vestibule. Inside, the air is pleasantly warm, and everything is spotlessly clean. A short corridor hall with shops on each side leads to the massive waiting room, where wooden pews widely spaced and capable of seating several hundreds of people line on each side away from the cross axis and the main movement of circulation. At the end, doors lead to toilet rooms, barbers' shops, and shoeshine parlours. Then comes the main hall. This is very much like the Tepidarium of the Roman Baths, perhaps 100 by 200 by 80 ft. high, with a barrel vault over. In the case of the Central Station, the barrel vault is painted as a sky complete with stars. The floor is of pink marble and there is no place here for sitting down. The centre piece of the floor is an information bureau in the form of a circular counter attended by a number of clerks who do nothing else but answer questions. Coloured porters wait around to carry passengers' luggage. Ticket offices are ranged along one side, and sufficient in number to prevent the formation of waiting queues. On the opposite wall is a range of small doors fronted with barriers and giving on to the platforms. These are kept shut until a few minutes before the train is due to start. As a waiting passenger, you may lounge about in the Grand Hall or in the waiting room, but you may not go near a train, and when you do get on the platform you find it quite an undesirable place for lounging. There is little or no daylight; the roof is low over the train, and the platforms are narrow. In short, the place is a very good one to be taken out of speedily. When the train moves, it does so under electric power, as coal engines are forbidden within the city area.

Traffic.—The traffic and the methods of controlling it form one of the strong characteristics of New York. People try to compare the traffic conditions of New York with London, but fail to convey much impression because the two systems are so entirely different. There is nothing to stop a pedestrian trying to cross the main avenues through the moving traffic, but he is unwise to do so. He may hustle with many things in New York, but he may not hustle across Fifth Avenue. He has to wait his time until the red light appears in the traffic tower. The man in the car moves down Fifth Avenue in a series of dashes. Every time the red light shows, which is every minute or two, he has to stop at the nearest corner. When the light changes to green, he dashes on again, and makes as much distance as he can before the next light is signalled, so moving in something of a kangaroo manner. He is very much under the discipline of the traffic "cops," who are rather touchy. If a driver, say, runs over a "stop" signal or turns in a wrong direction, they get very angry; they "bawl him out." And these constant dashes sometimes give rise to a little friction, cars being inclined to butt up against one another. Metal buffers—a sort of modified cow catcher—are fitted in front and rear to meet this circumstance.

The stranger, having looked around the city a little and noticed some of the outstanding things such as some of those which have just been mentioned, invariably arrives at the stage when he must sit down quietly and re-sort the ideas which he previously held about this young country. He will then endeavour to make up his mind what sort of people the Americans really are, and to recall a few things about them such as this:—

The U.S.A. is approximately as large as Europe. New York has a population of about 7,000,000. Chicago, which one hundred years ago did not exist at all, now has more people than Paris. The State of Illinois is as large as England. The U.S.A. is a foreign country and in a foreign continent. The language, which is American-English, is similar to English, but the phraseology and intonation are different. Americans think differently from Englishmen. The cost of living is nearly twice as high as in England. Wages are nearly double. There is a job for everybody, and nearly everybody does work of some kind. Theatres, cinemas, &c., are fairly similar to the English, but social life is different, class distinctions being less marked. A man is generally credited for the amount of money he has. If he cannot make money, he cannot be much good.

Unemployment and poverty are practically unknown, although they do occur in bad periods. There appears to be nothing in the nature of workhouses, and charitable institutions are grouped and organised, so that when persons need help their cases are carefully investigated and dealt with. Borrowing and credit by such people does not seem to go very far. The people do not seem to suffer much from the "inferiority complex"; they believe in themselves; everywhere is enterprise and energy. Morale is first rate, and there is not much "grousing"; if a man does not like his job, he quits and gets another. The sun shines a great deal and cloudy days are an exception. The great majority of fathers and grandfathers of the present generation came as humble settlers from Europe—poor, but men with ideals.

These remarks are about New York, but of course New York is not America. Some New Yorkers are happy in thinking of New York as the same thing as America, and consider, perhaps correctly, that all the influences of the rest of the country are to be found in his city. However, some notes on other parts of America will be given later.

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

The Registration of Architects.

SIR,—The R.I.B.A. Circular hastens to assure us that "nothing done by the Institute in promoting legislation for the Registration of Architects will affect detrimentally the interests of any person now living by the practice of architecture."

But to the "Man in the Street" membership of a professional body counts a great deal, and the unattached man thereby suffers by the action of the R.I.B.A. in closing the non-examination class of Licentiates to all but a comparatively few "early birds" and members of the Society of Architects.

The I.A.A.S., therefore, is out to protect the qualified unattached architect (whether practising or an assistant), by giving him a better status than that implied by the term "Registered Architect," which I understand will distinguish the unattached man from his Licentiate colleagues.

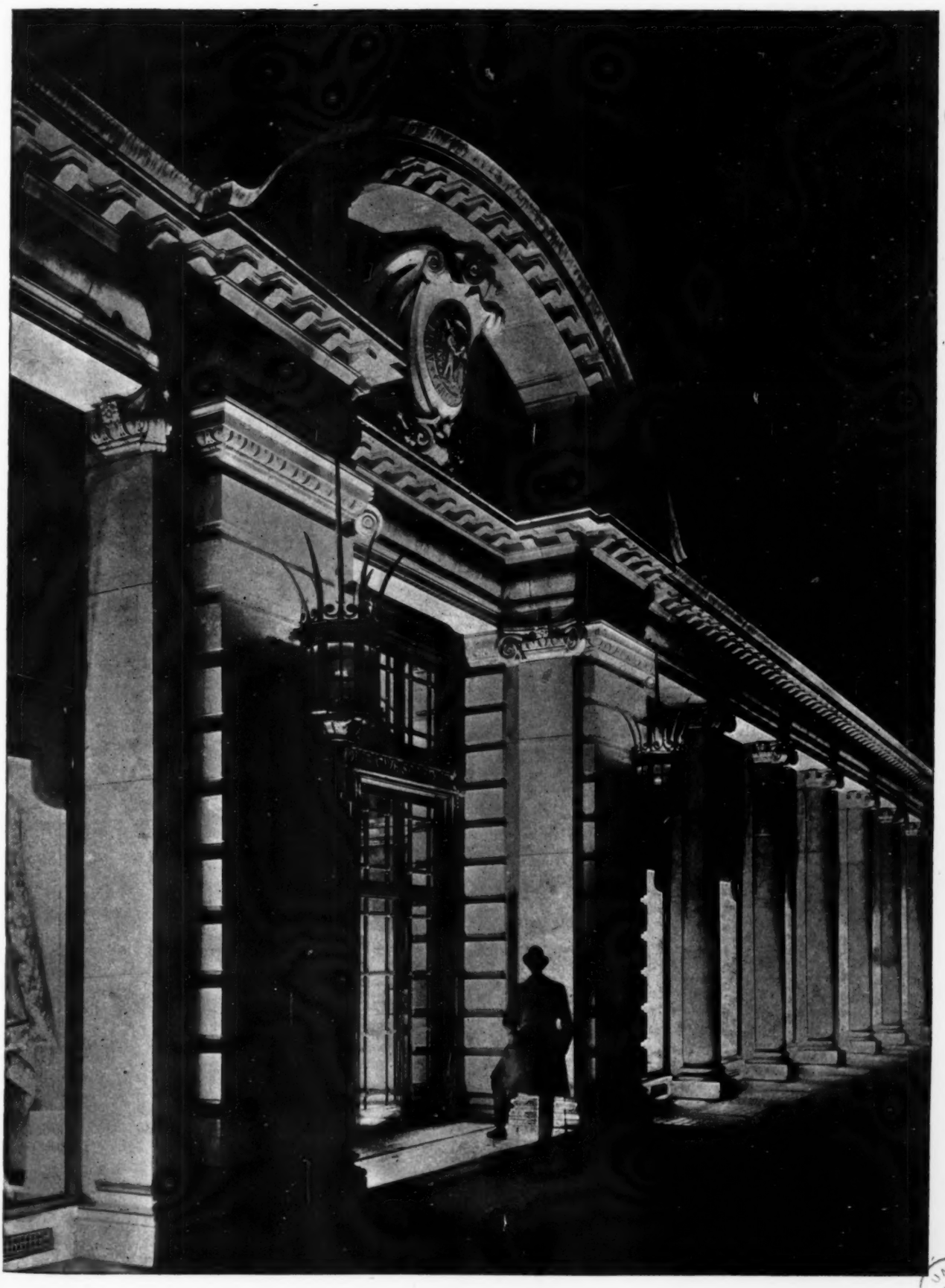
HOLLY.

NOTE.—For General News, Competition News, Illustrations, etc., see pages 67–70.

Detail of Doorway, College of Nursing, Henrietta Street, Cavendish-square, W.

SIR EDWIN COOPER, Architect.

UNIV. OF MICH.



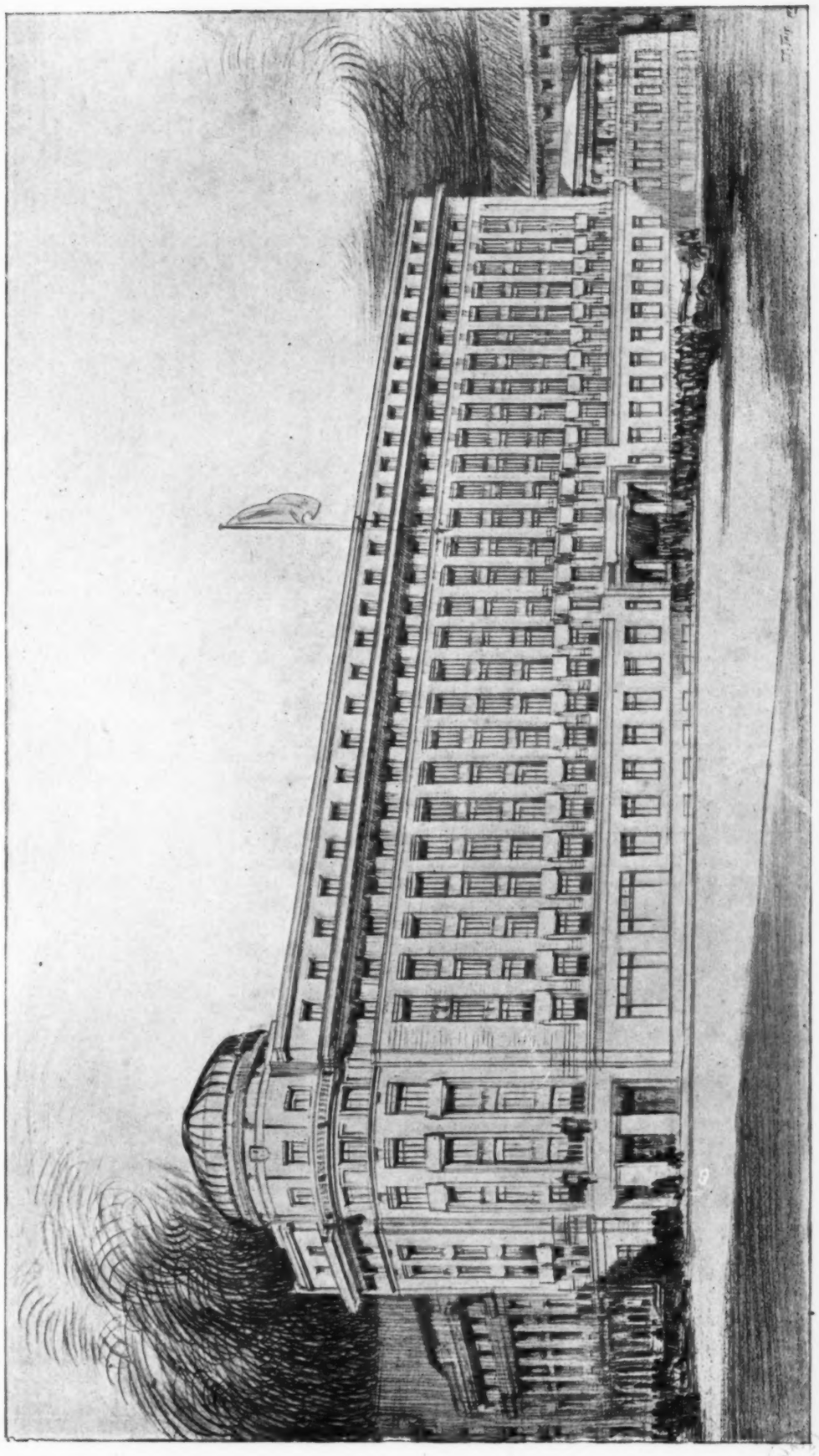
New Army & Navy Stores, Victoria-street, Westminster, S.W.: Effect of Pavement Lighting.

SIR ASTON WEBB, P.P.R.A., & SON, Architects.

Study for Centre Pavilion : Messrs. John Barker's New Premises, Kensington, W.

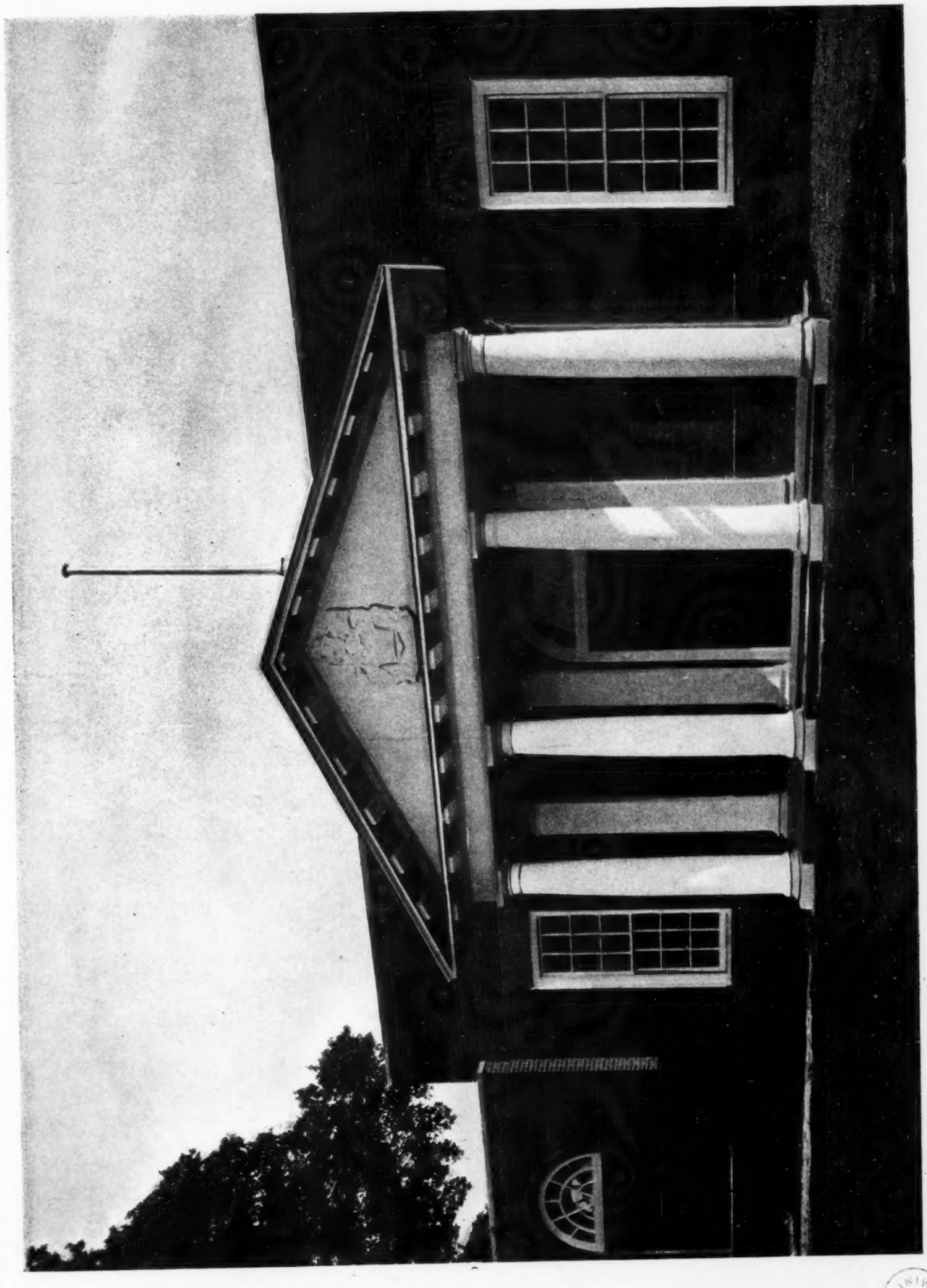
SIR REGINALD BLOMFIELD, R.A., Architect.

UNIV. OF MICH.



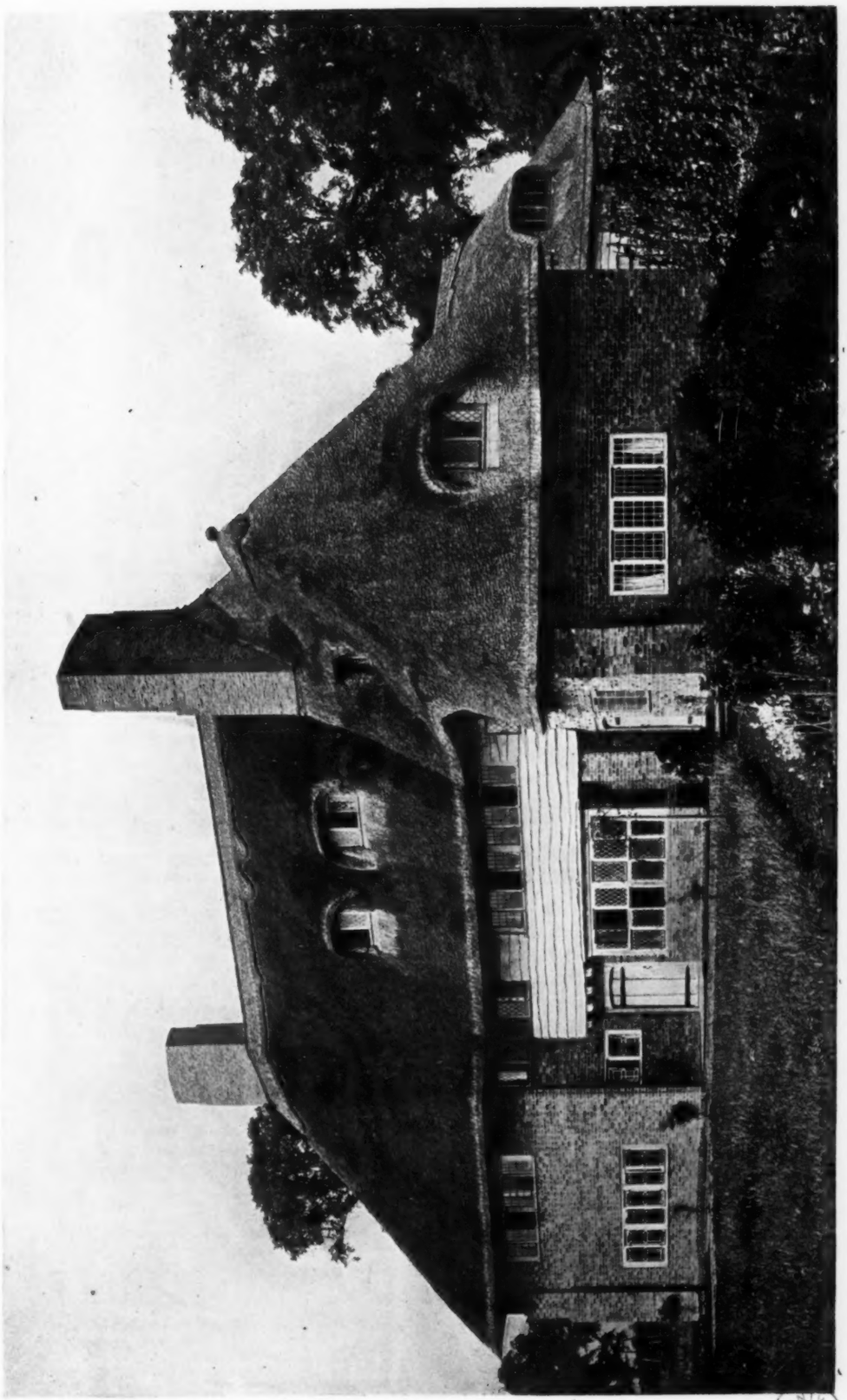
Design for the Newcastle Electric Supply Co.'s Offices, Newcastle-on-Tyne.

MR. L. J. COUVES, in association with SIR JOHN BURNET & PARTNERS, Architects.



Sports Pavilion for the Port of London Authority, Tilbury.
Sir Edwin Cooper, Architect.

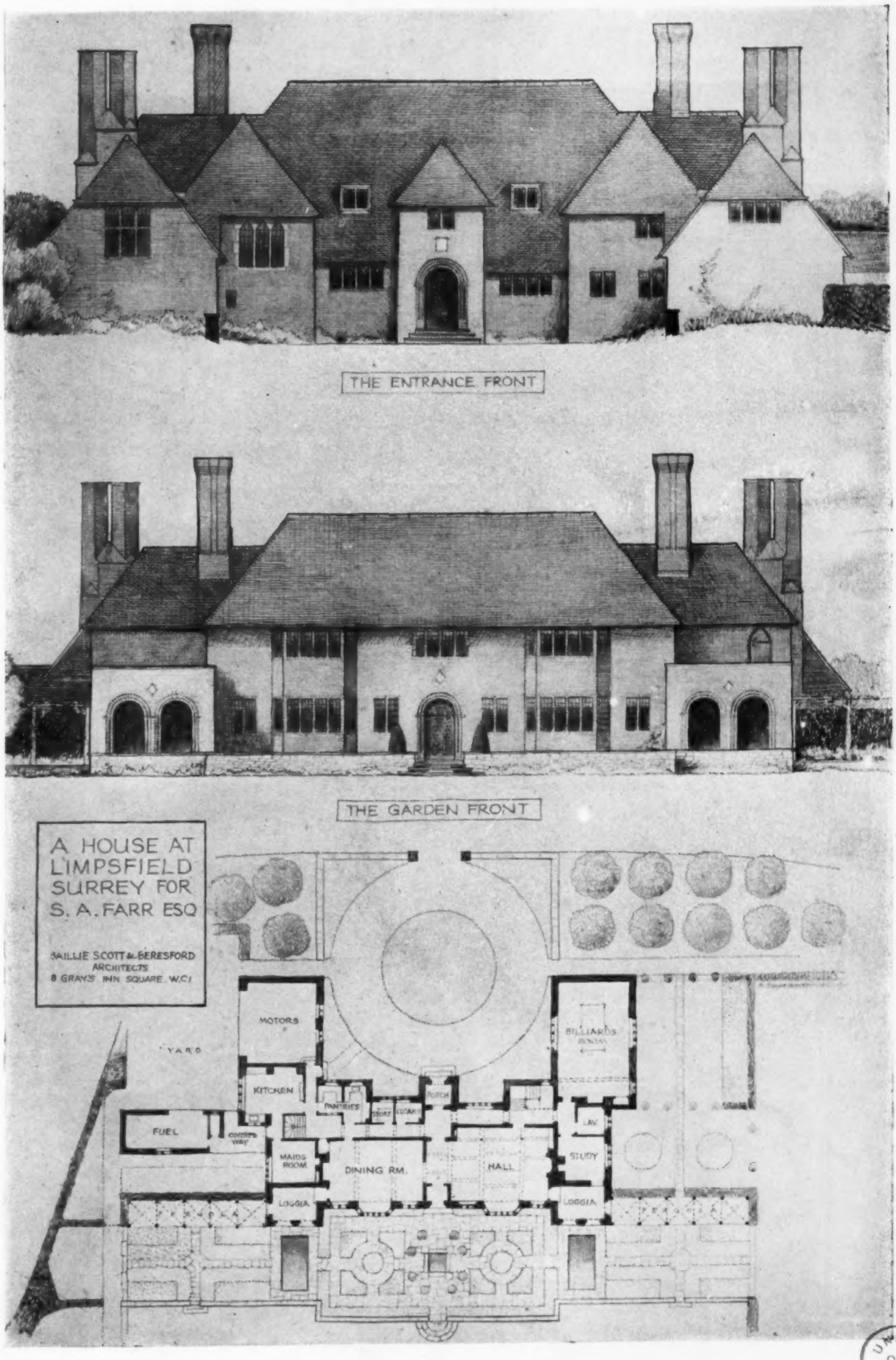
UNIV. OF MICH.



House in Warwickshire.

Mr. Oliver Hill, F.R.I.B.A., Architect.

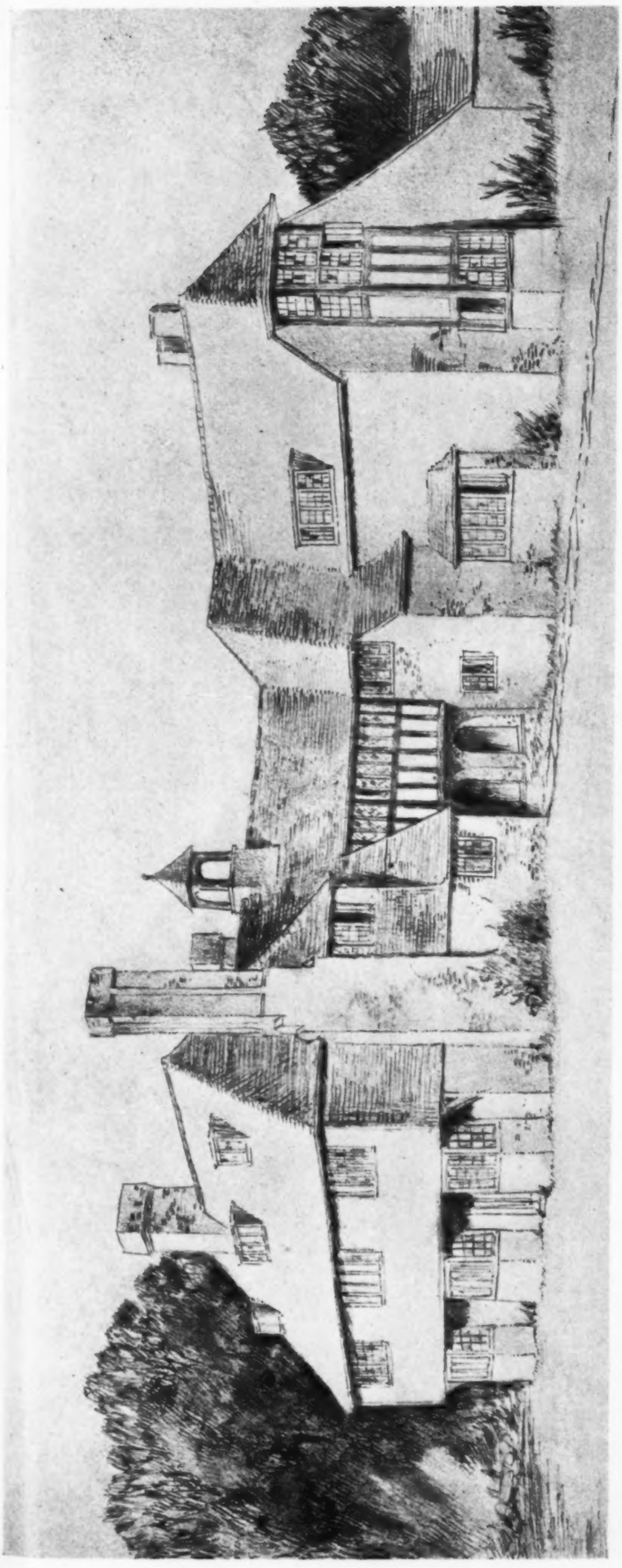
UNIV. OF MICH.

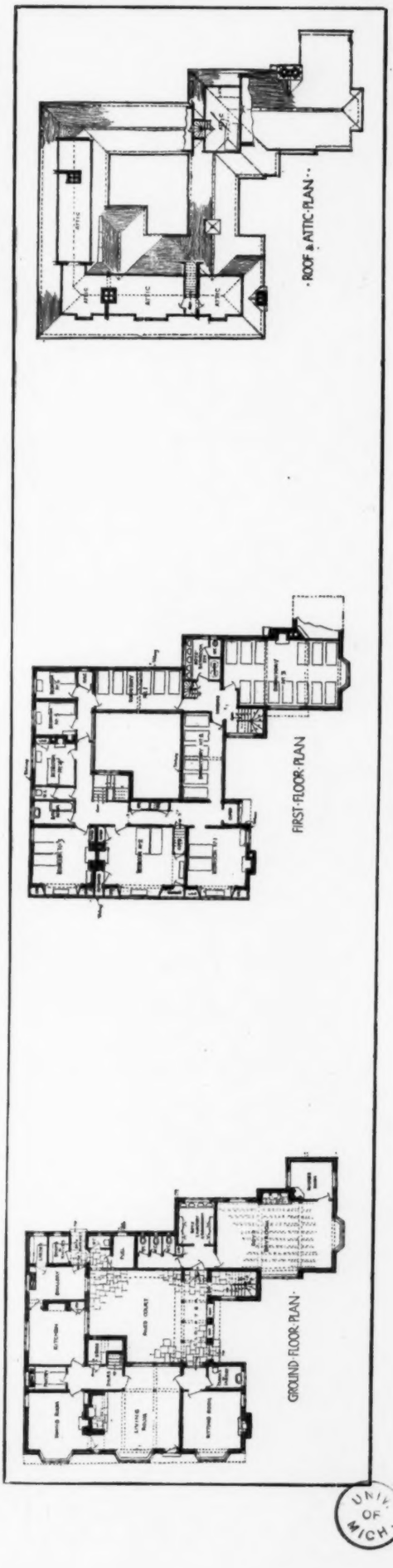


House at Limpsfield, Surrey.

MESSRS. BAILLIE SCOTT & BERESFORD, Architects.

UNIV. OF MICH.





Bembridge School, Isle of Wight.

MESSRS. BAILLIE SCOTT & BESSFORD, Architects.

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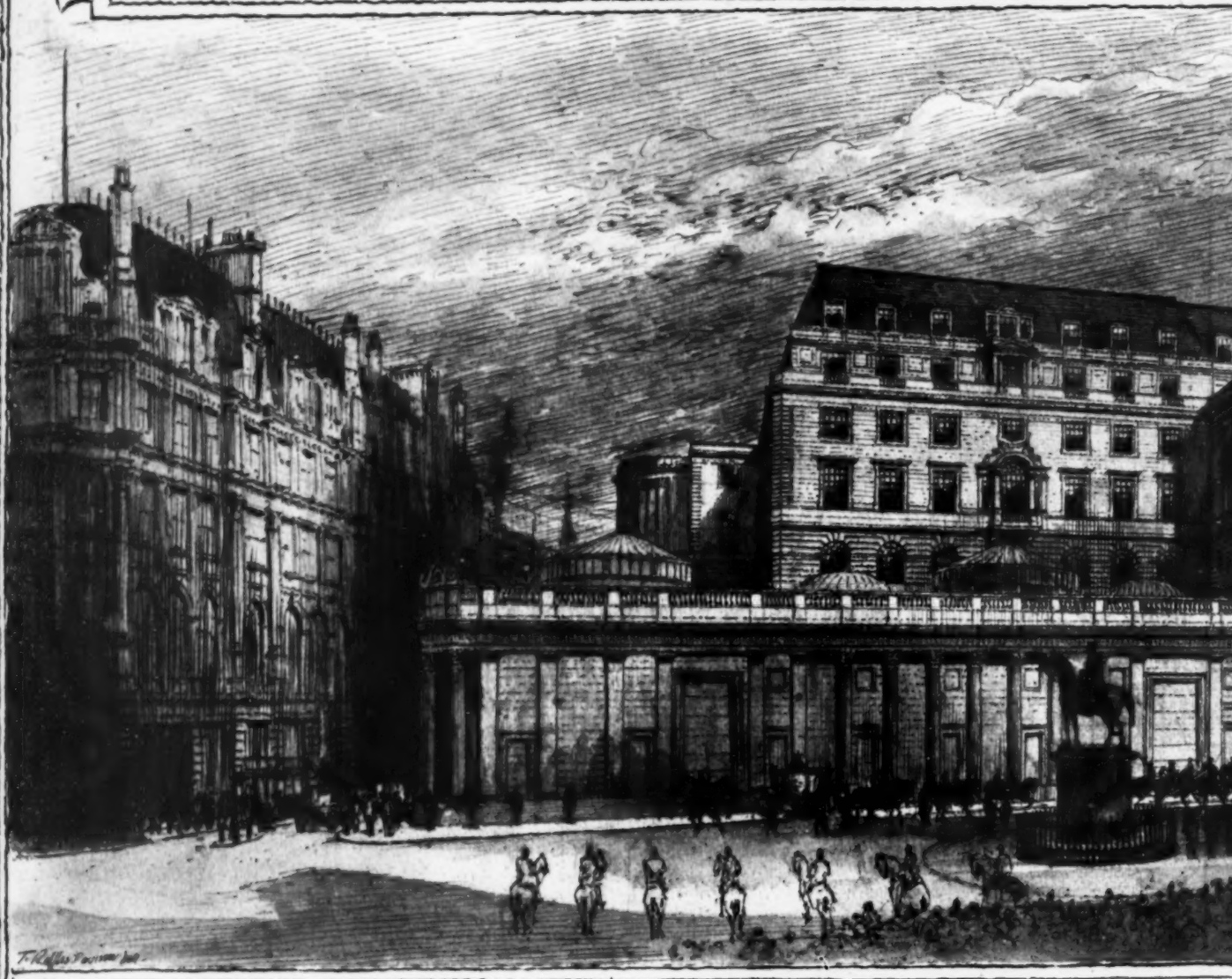
THE BUILDER C



THE NEW BANK OF ENGLAND SHEWING ITS RELATION

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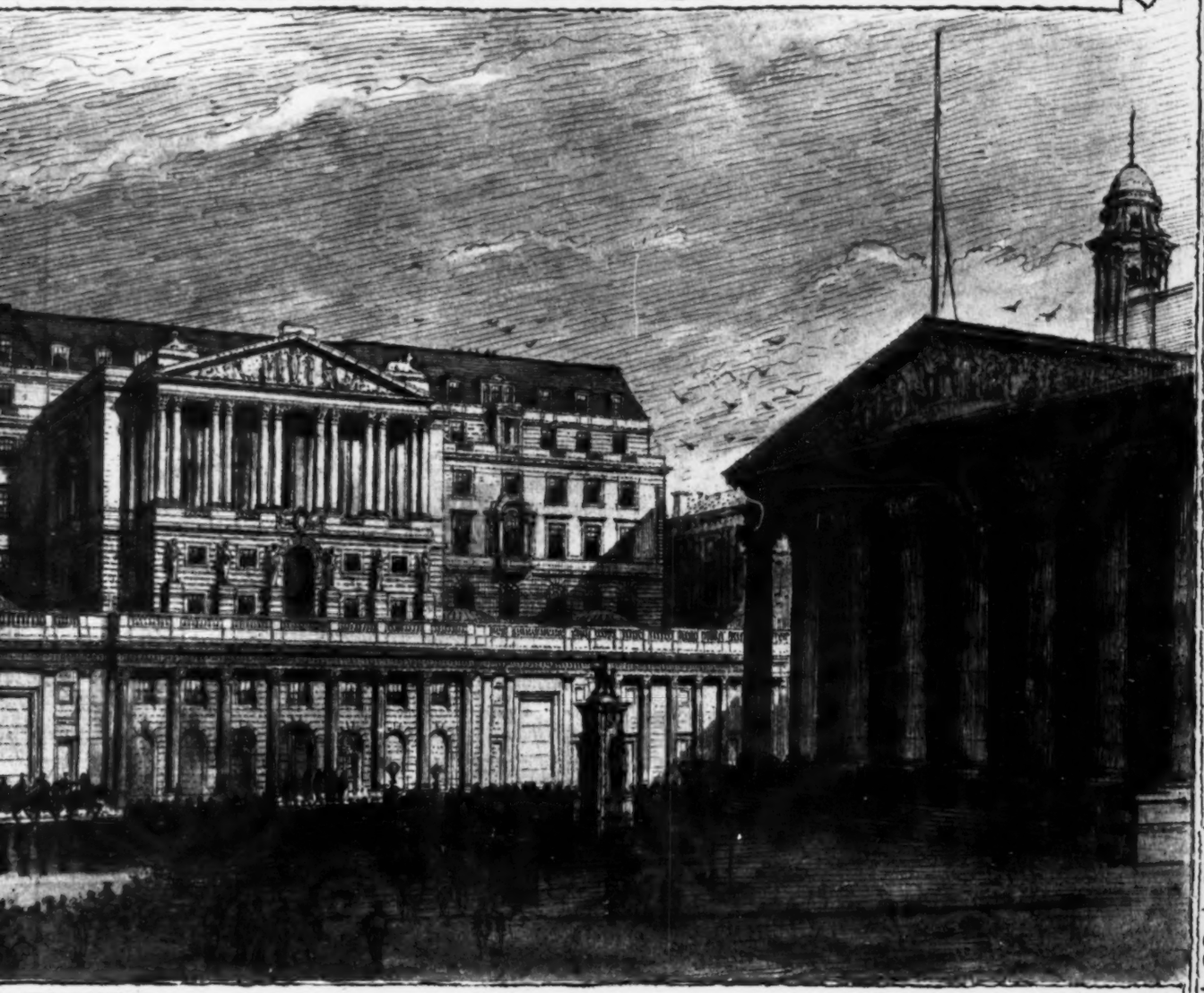
CALENDAR 1926



ON TO ITS SVRROVNDINGS HERBERT BAKER A.R.A. ARCHITECT

STATE OF MICH.

July.

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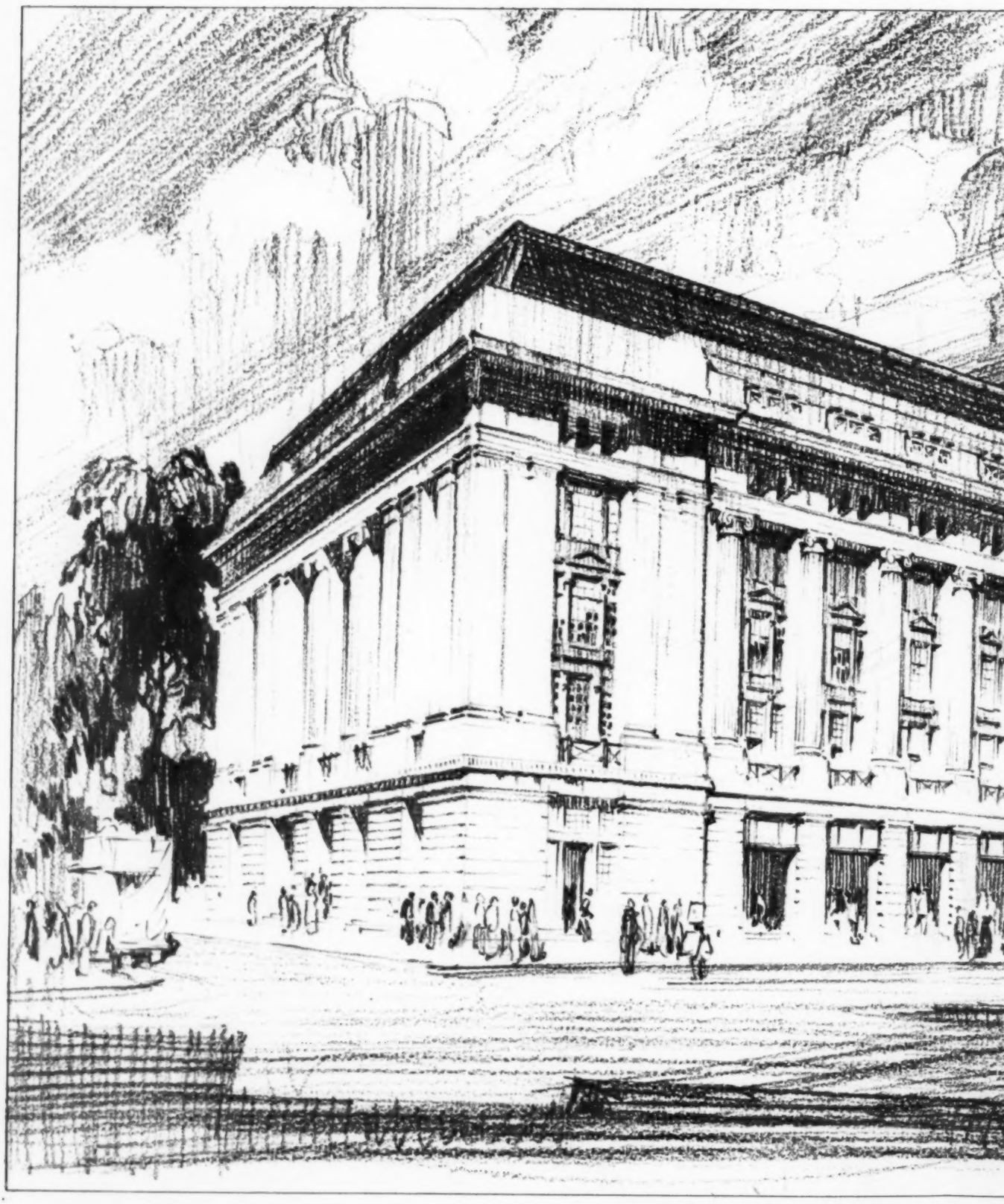
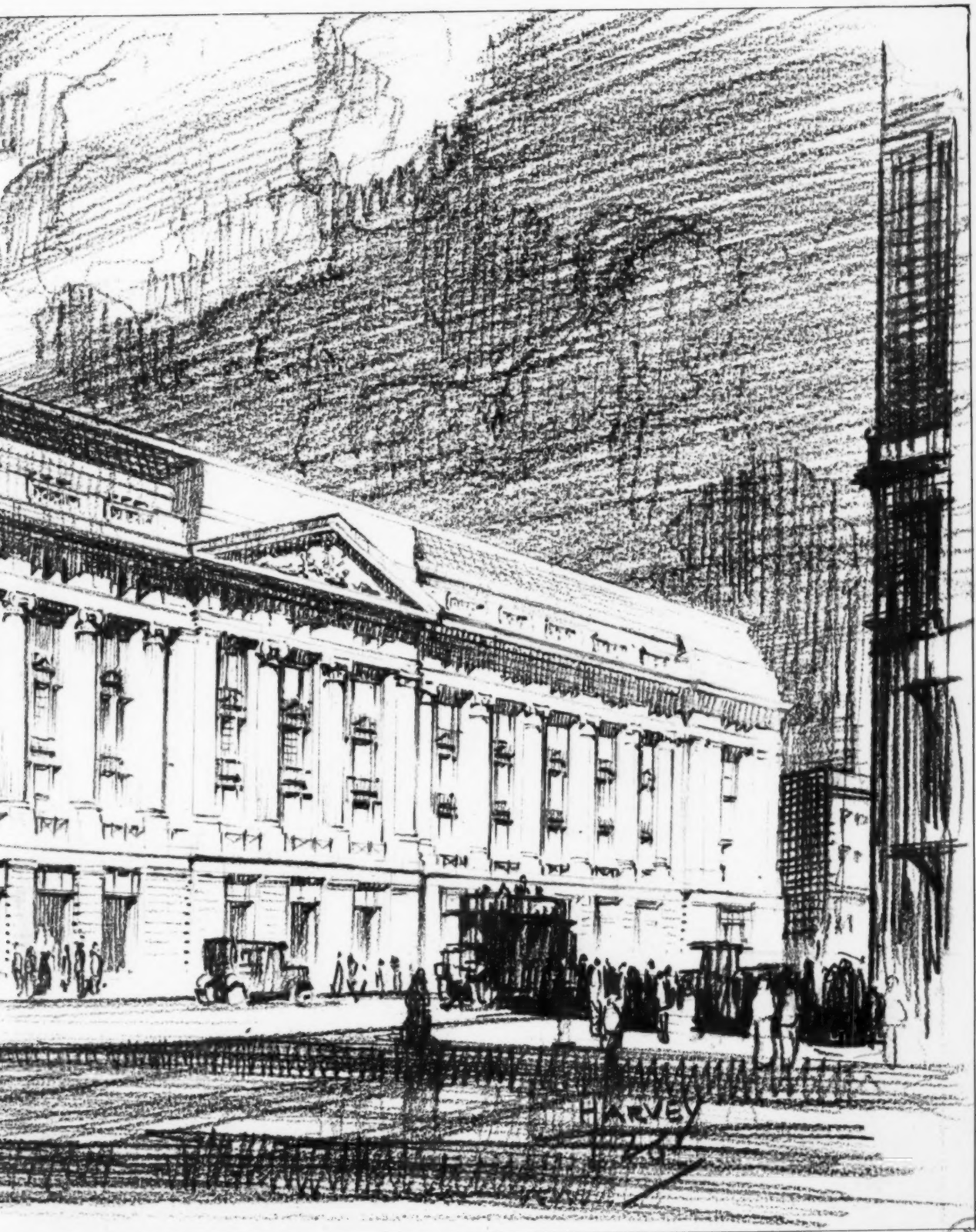


NEW PREMISES FOR THE LIVERPOOL VICTORIA FRIENDLY

MR. CHARLES W. LONG, F.R.I.B.A., A



FRIENDLY SOCIETY, SOUTHAMPTON ROW, W.C.

F.R.I.B.A., ARCHITECT.

UNIV. OF MICH.

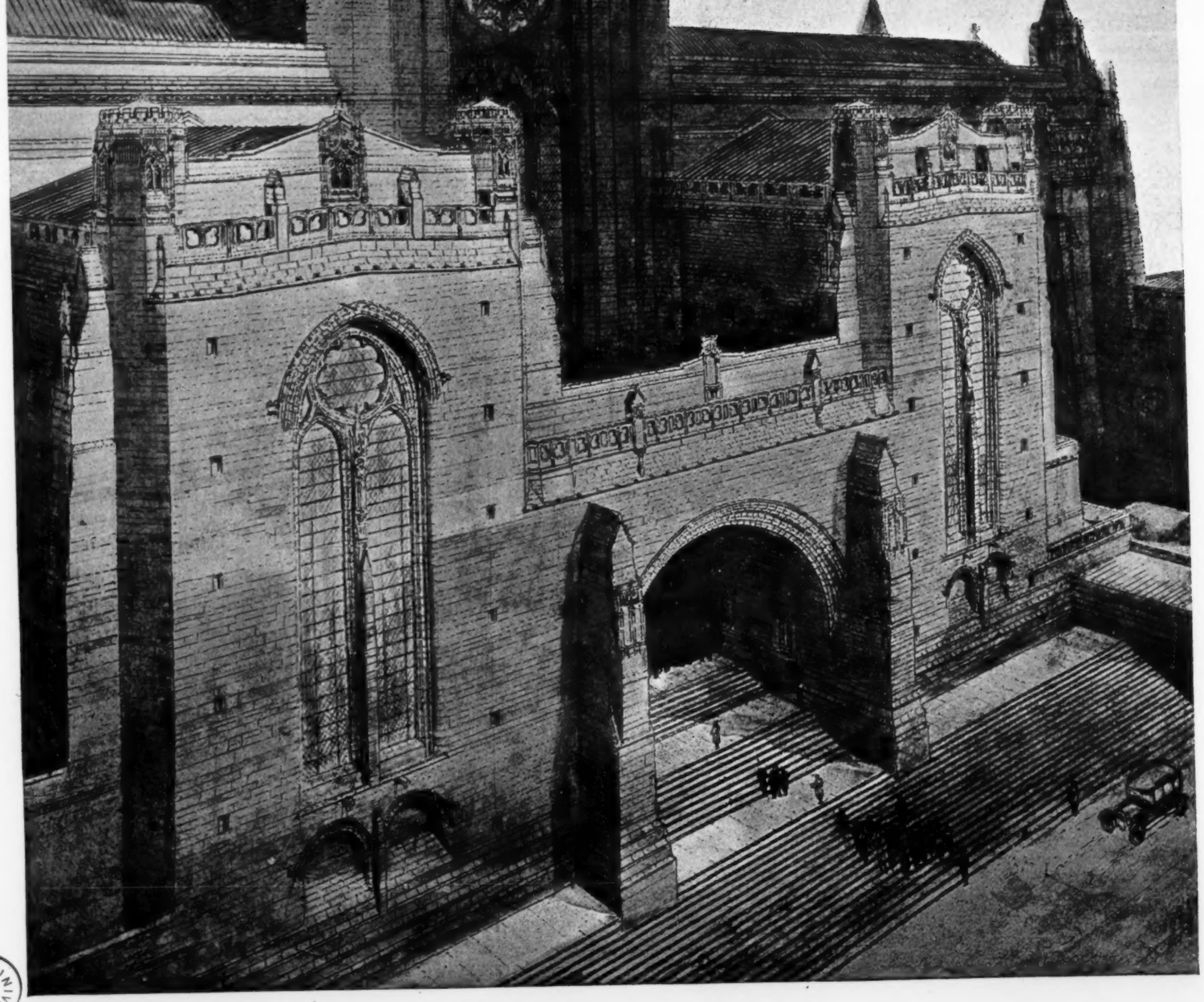
WESTMINSTER BANK, PICCADILLY AND ALBEMARLE STREET, W.

Mr. W. Curtis Green, A.R.A., Architect.

OF WICH.

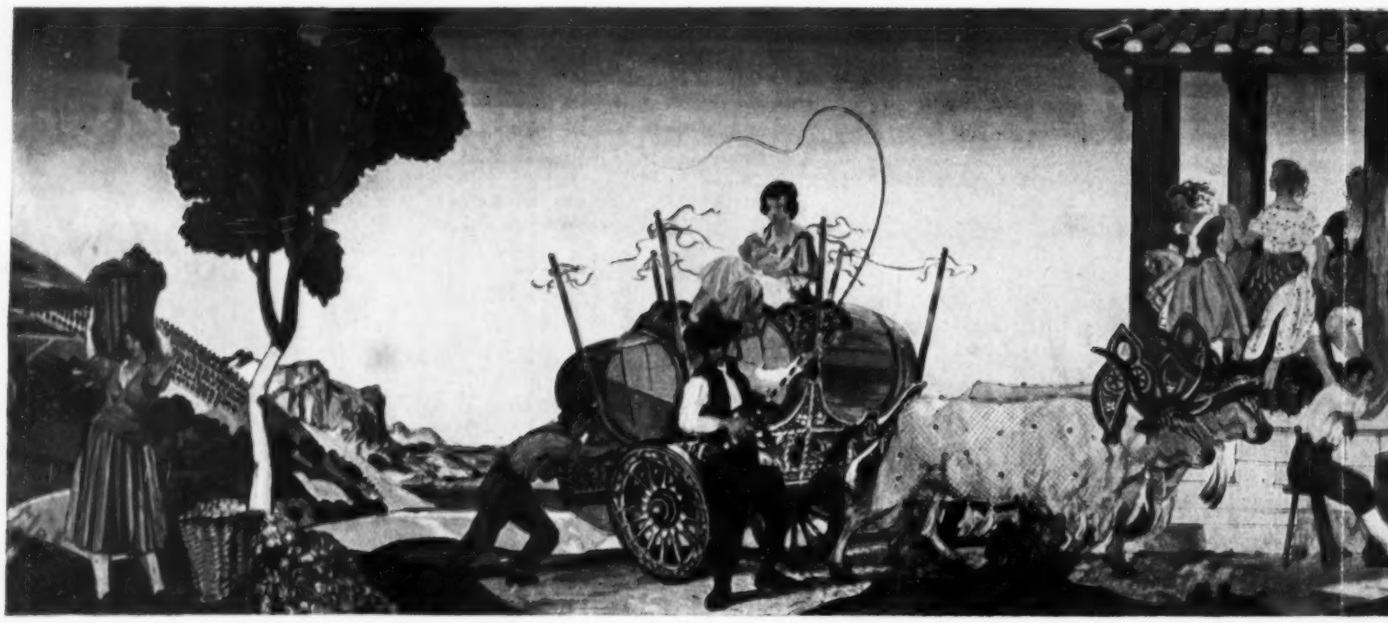
UNIV. OF MICH.

COLLEGE OF NURSING, HENRIETTA STREET, CAVENDISH SQUARE, W.
Sir Edwin Cooper, Architect.



UNIV. OF MICH.

THE CENTRAL TOWER, LIVERPOOL CATHEDRAL.
Sir Giles Gilbert Scott, R.A., Architect.



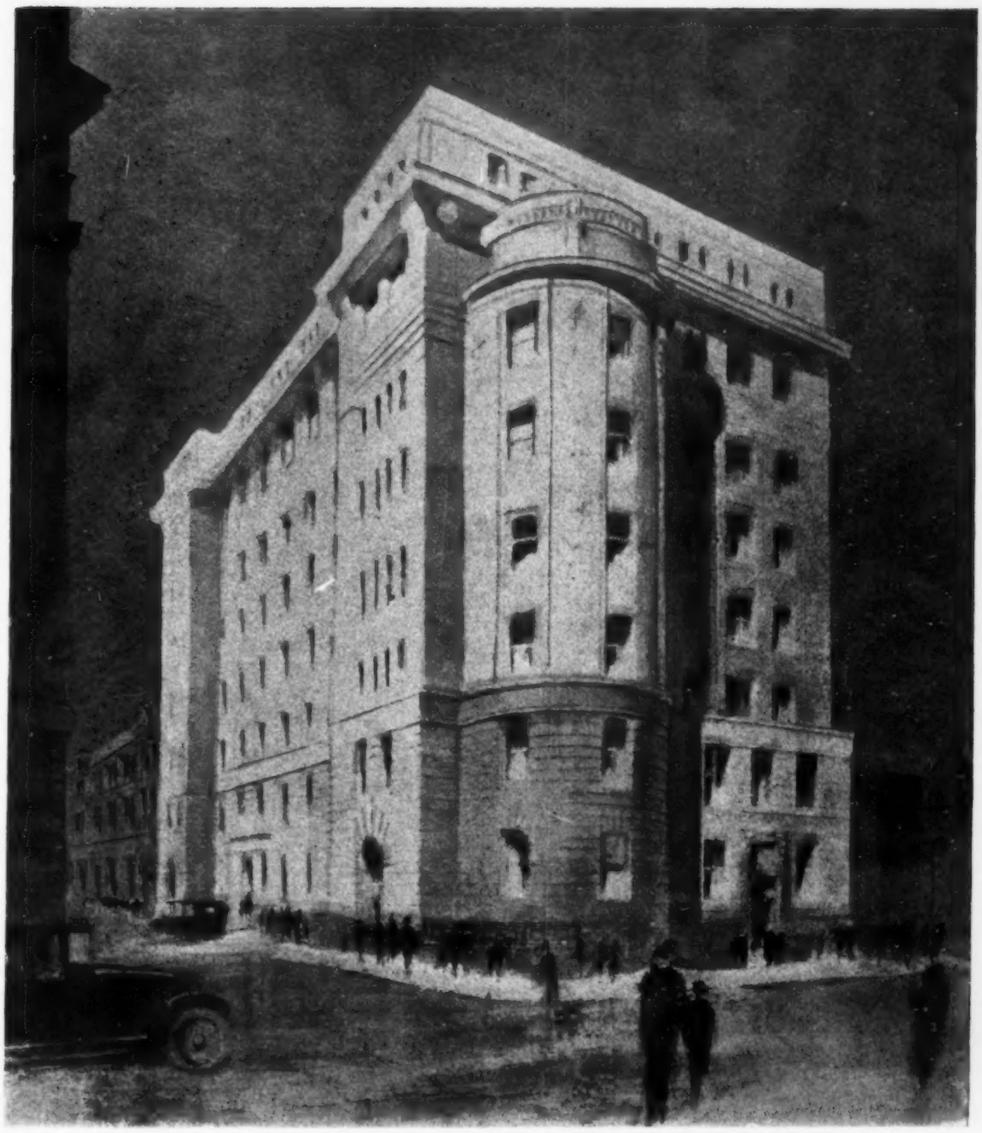
Frieze Decoration over Panelling in Main Hall of the Arm

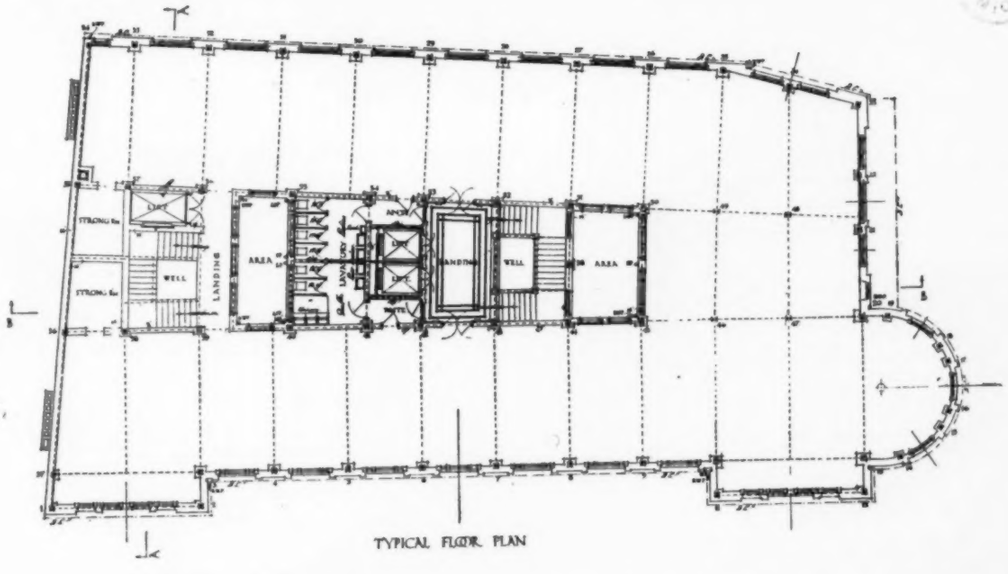
Designed and executed by PROFESSOR GERALD MOIRA, R.W.S. SIR ASTON WE

UNIV. OF MICH.

ne Army and Navy Stores, Victoria Street, Westminster.

ETON WEBB, P.-P.R.A., and MR. MAURICE E. WEBB, F.R.I.B.A., Architects.

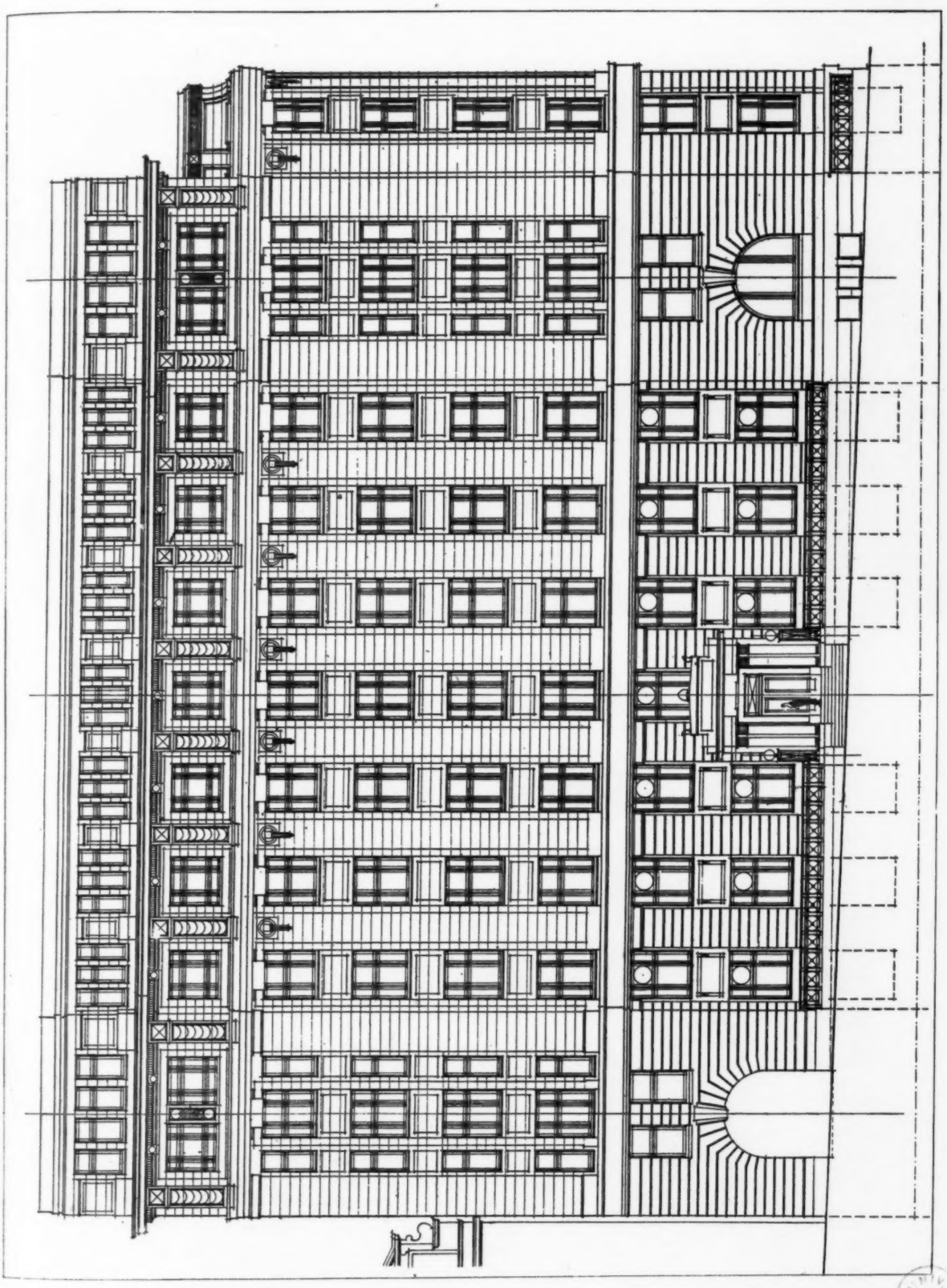




TYPICAL FLOOR PLAN

Blackfriars House, Manchester, for the Bleachers' Association, Ltd.

MR. HARRY S. FAIRHURST, A.R.I.B.A., Architect.



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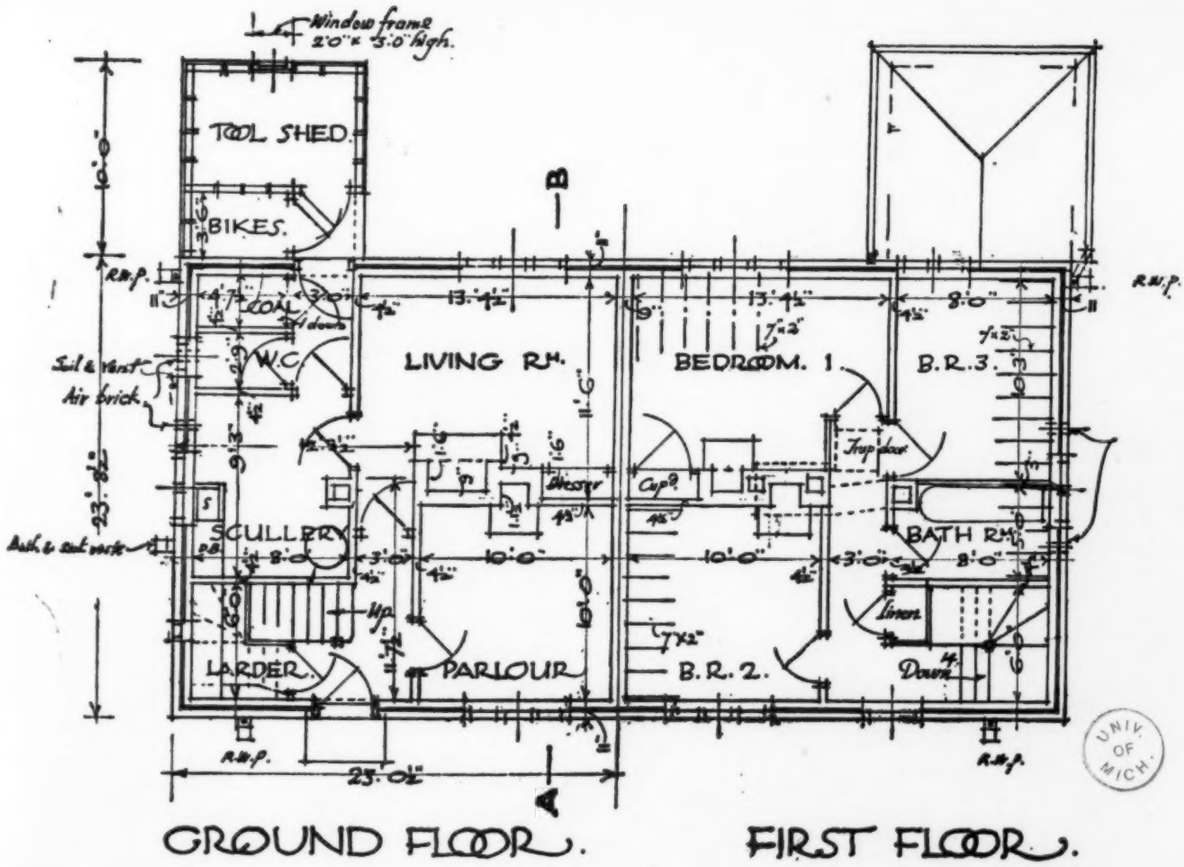

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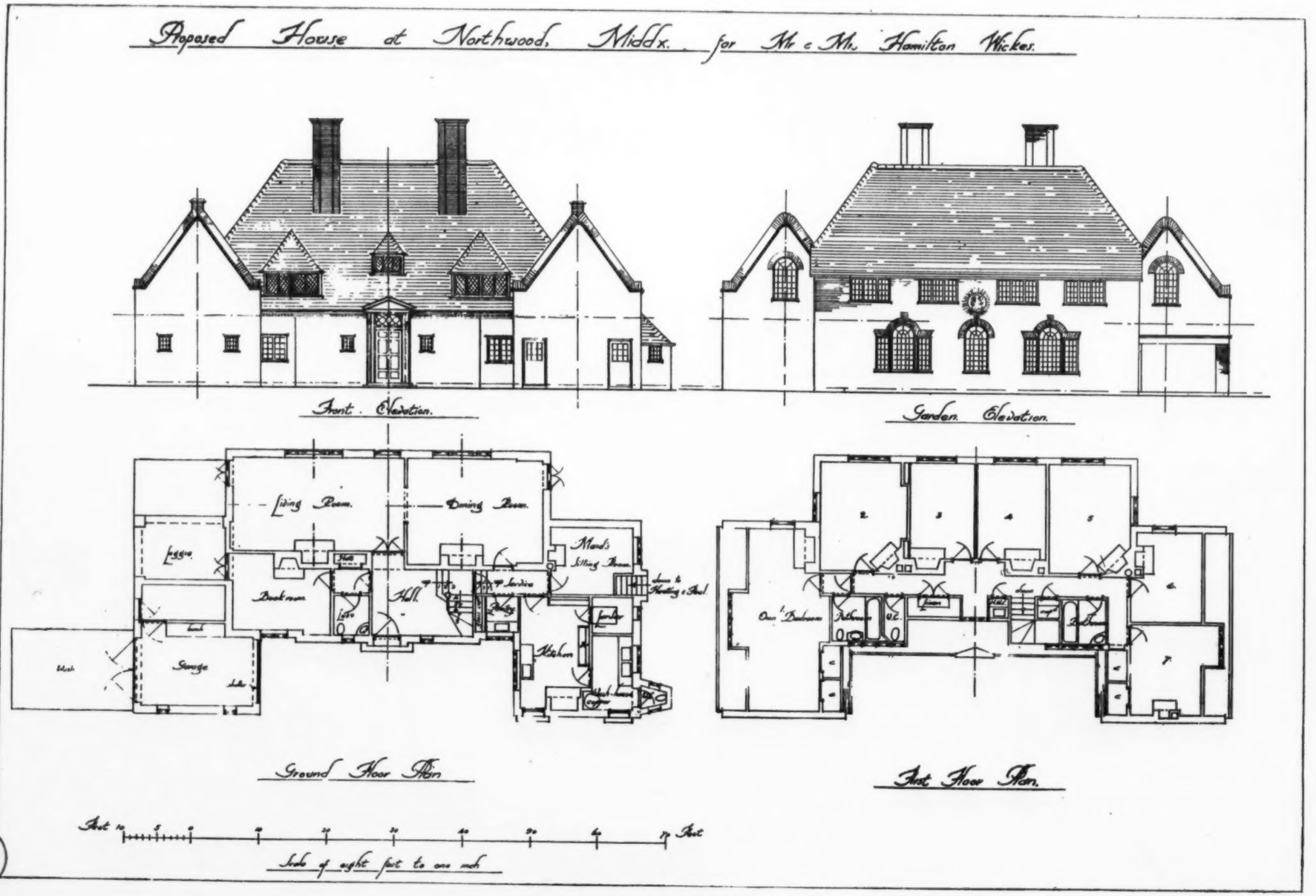
Cottages at Long Sutton.

MR. E. GUY DAWBER, P.R.I.B.A., Architect.



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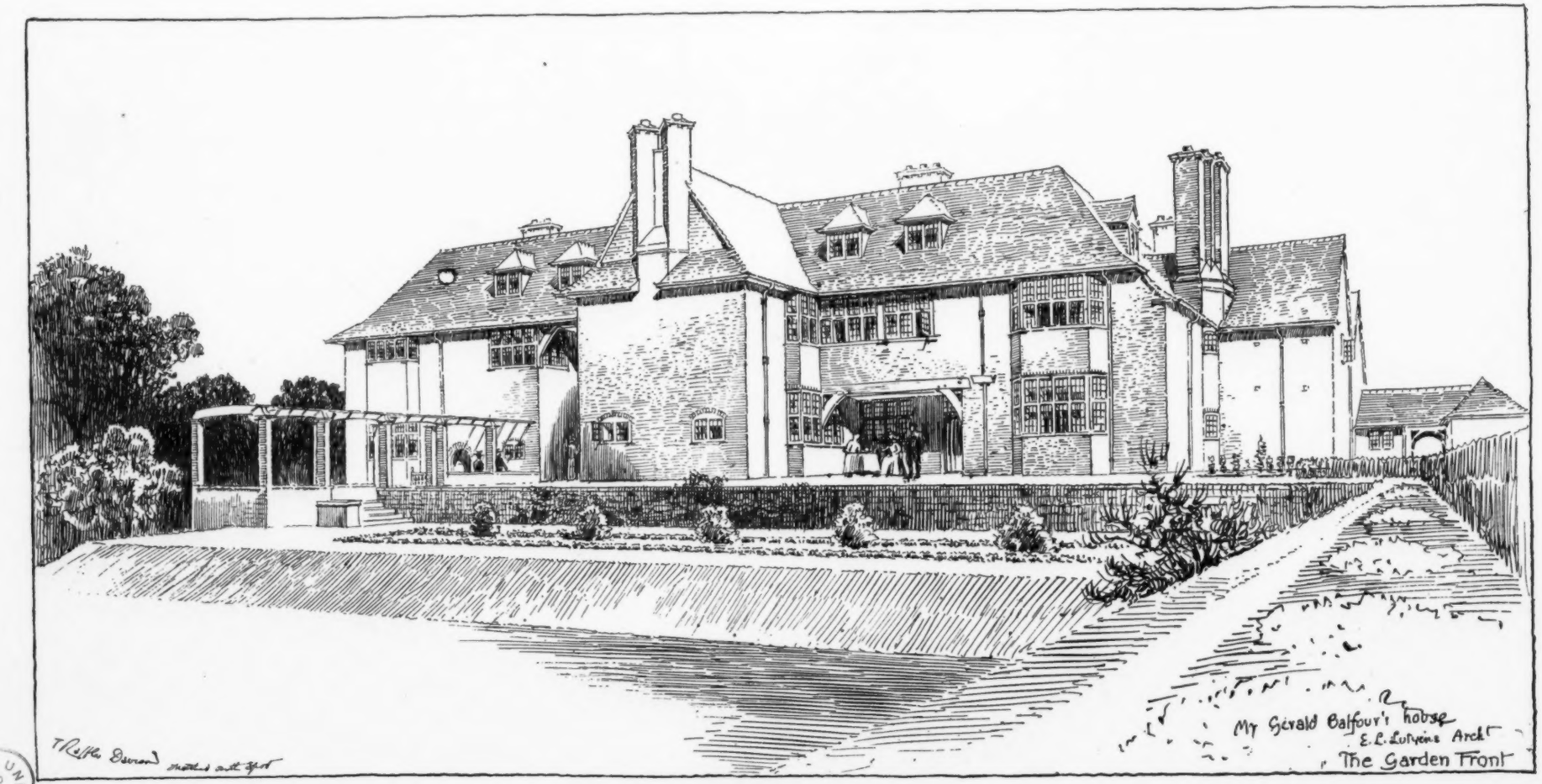
House at Northwood, Middlesex.

MR. PHILIP TILDEN, Architect.



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A Sketch Study of "Fishers' Hill."

SIR EDWIN LUTYENS, R.A., Architect.

A Sketch Study of "Fishers' Hill."

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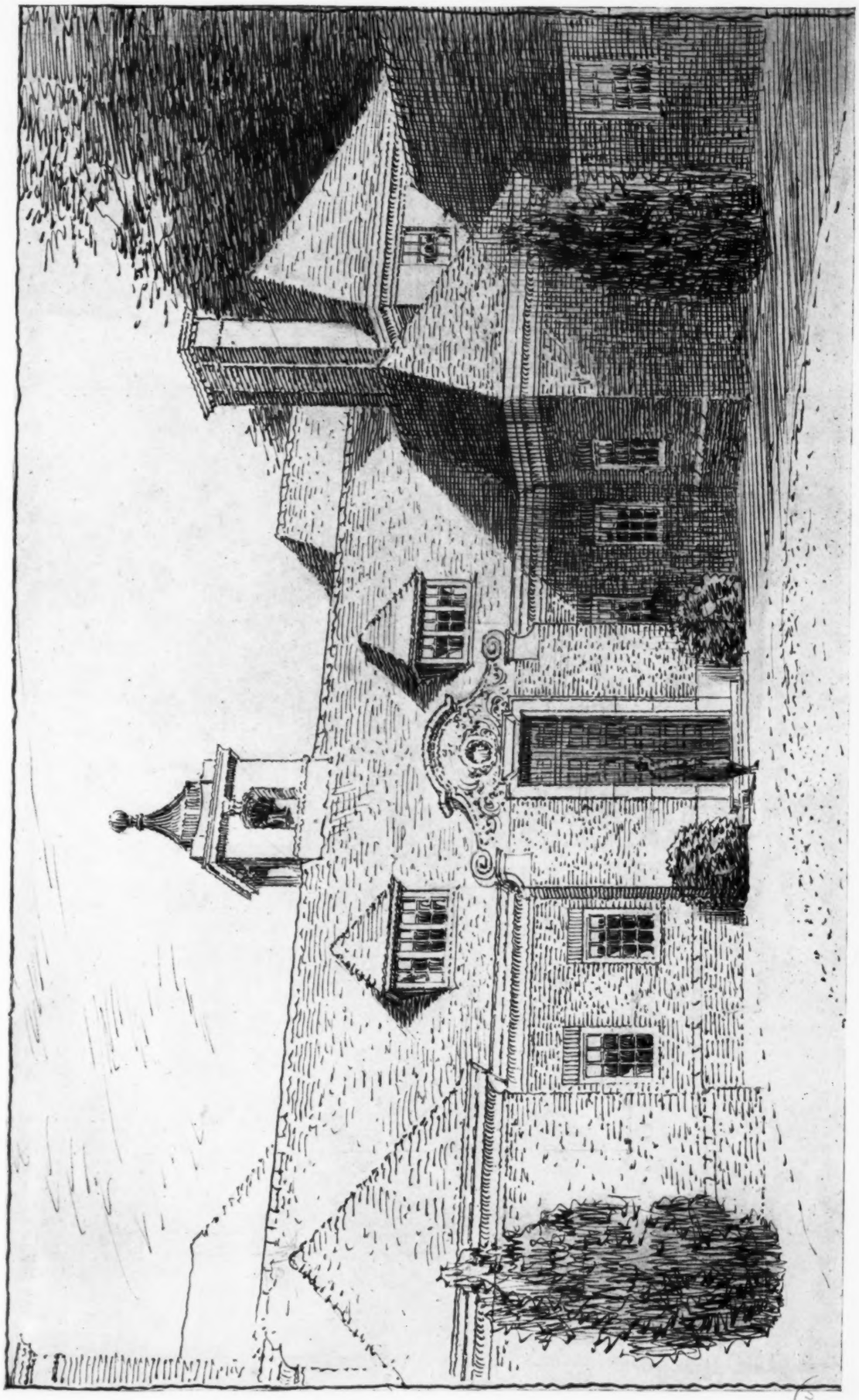
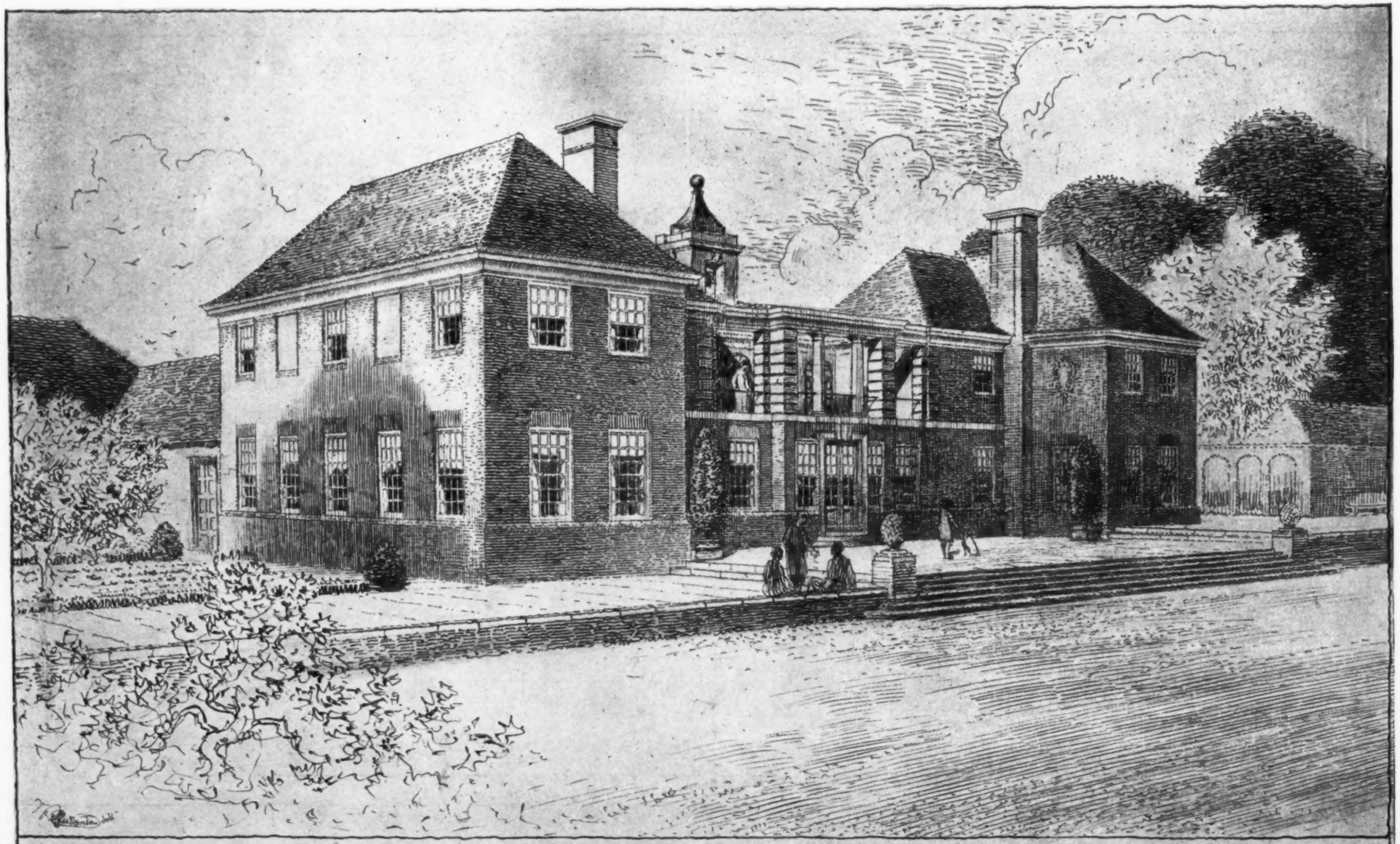
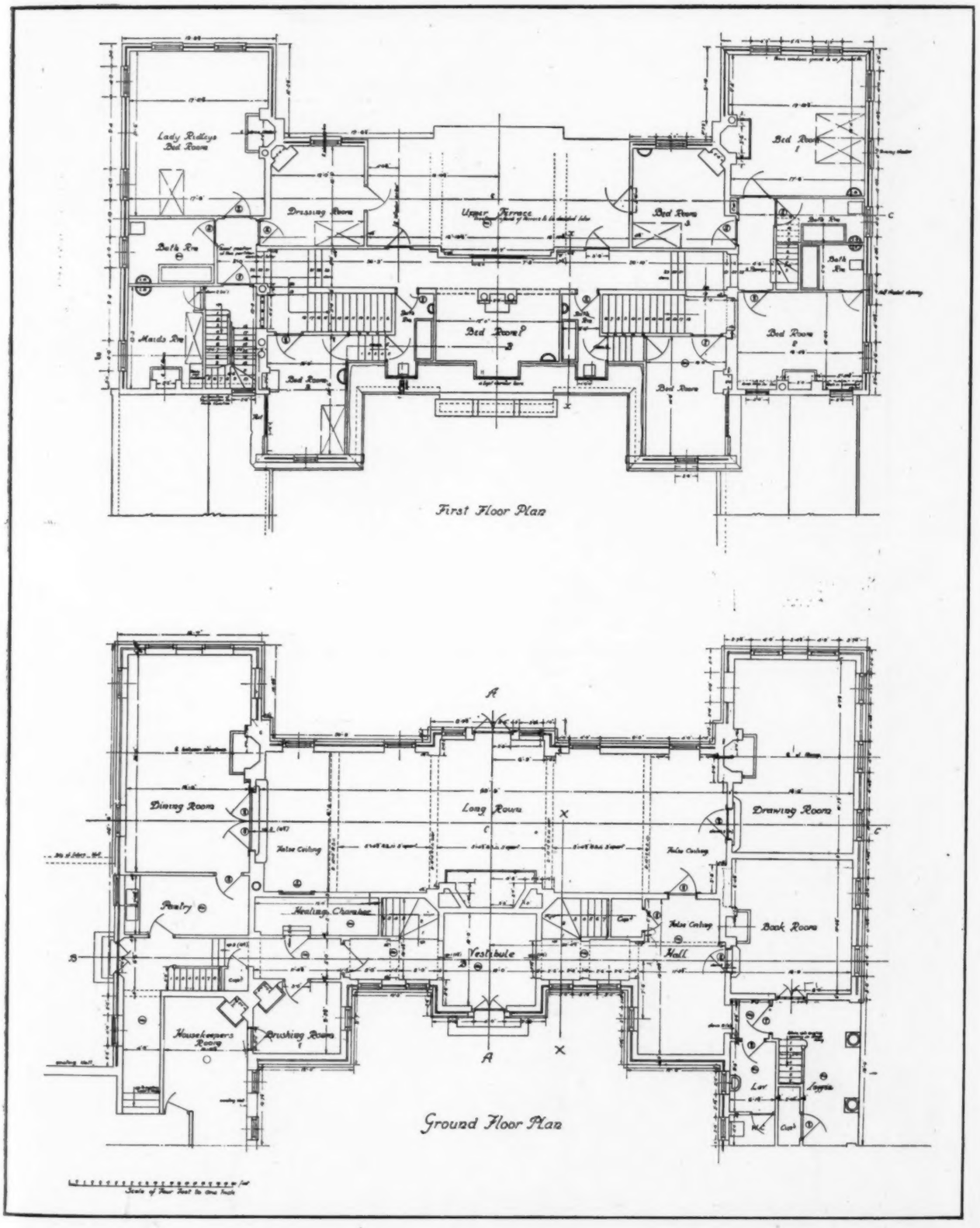


House for Viscountess Ridley at Box Hill, Surrey. Mr. Philip Tilden, Architect.



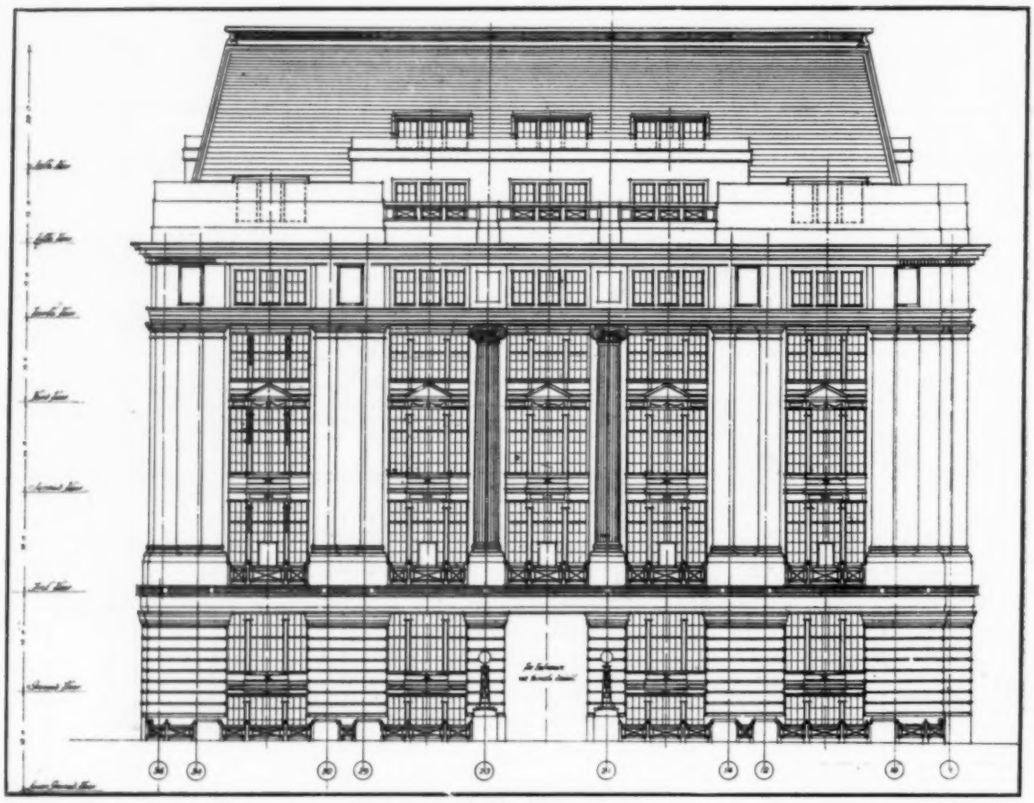
HOVSE FOR VISCOVNTESS RIDLEY AT BOX HILL PHILIP TILDEN ARCHITECT

UNIV. OF MICH.

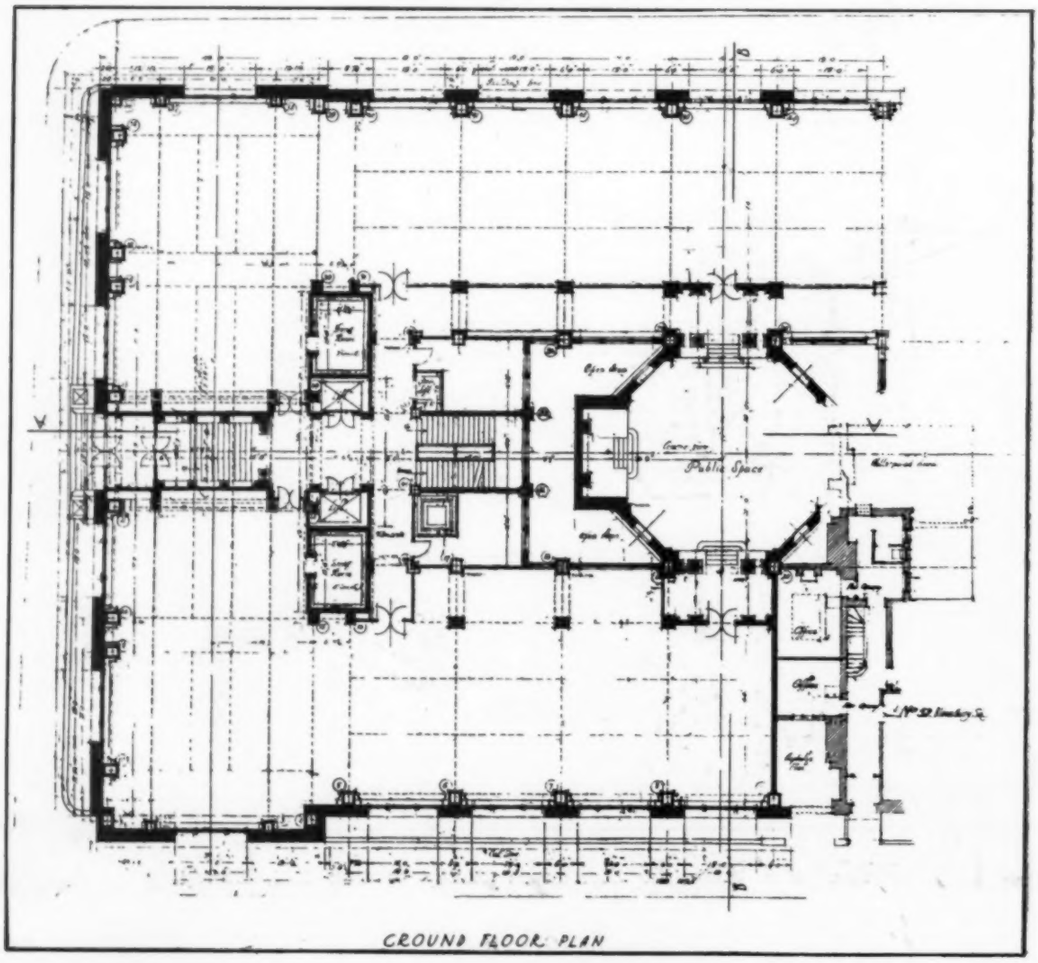


Plans of a House for Viscountess Ridley at Box Hill, Surrey.

MR. PHILIP TILDEN, Architect.



ELEVATION TO BLOOMSBURY-PLACE.

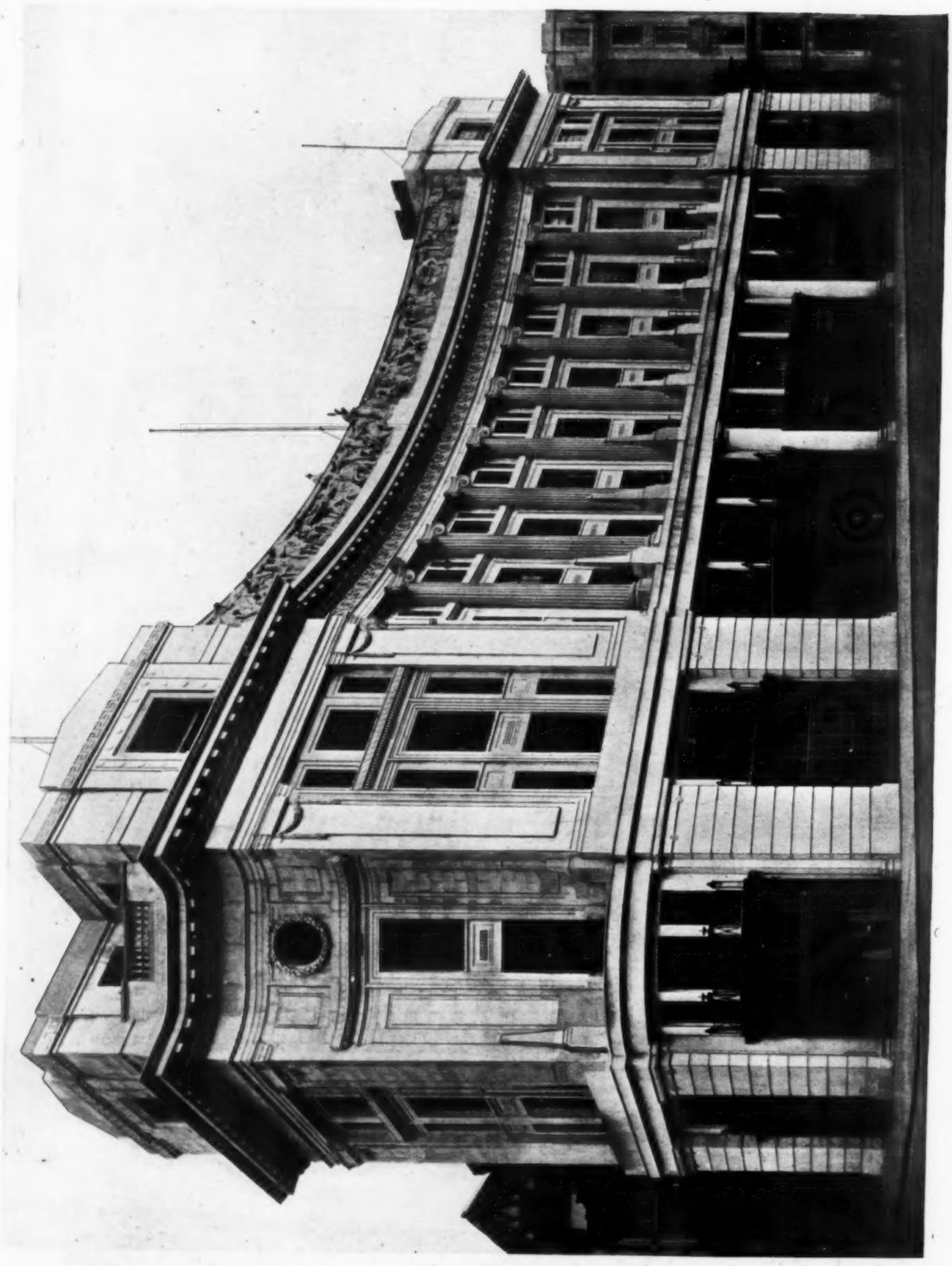


New Premises for the Liverpool Victoria Friendly Society, Southampton-row, W.C.

MR. CHARLES W. LONG, F.R.I.B.A., Architect.

The Chenil Galleries, Chelsea.

MESSRS. KENNEDY & NIGHTINGALE, Architects.



Messrs. Liberty's New Premises, Regent-street, W.

THE LATE EDWIN T. HALL & MR. E. STANLEY HALL, F.R.I.B.A., Architects.

London & South American Bank, Tokenhouse Yard, E.C.

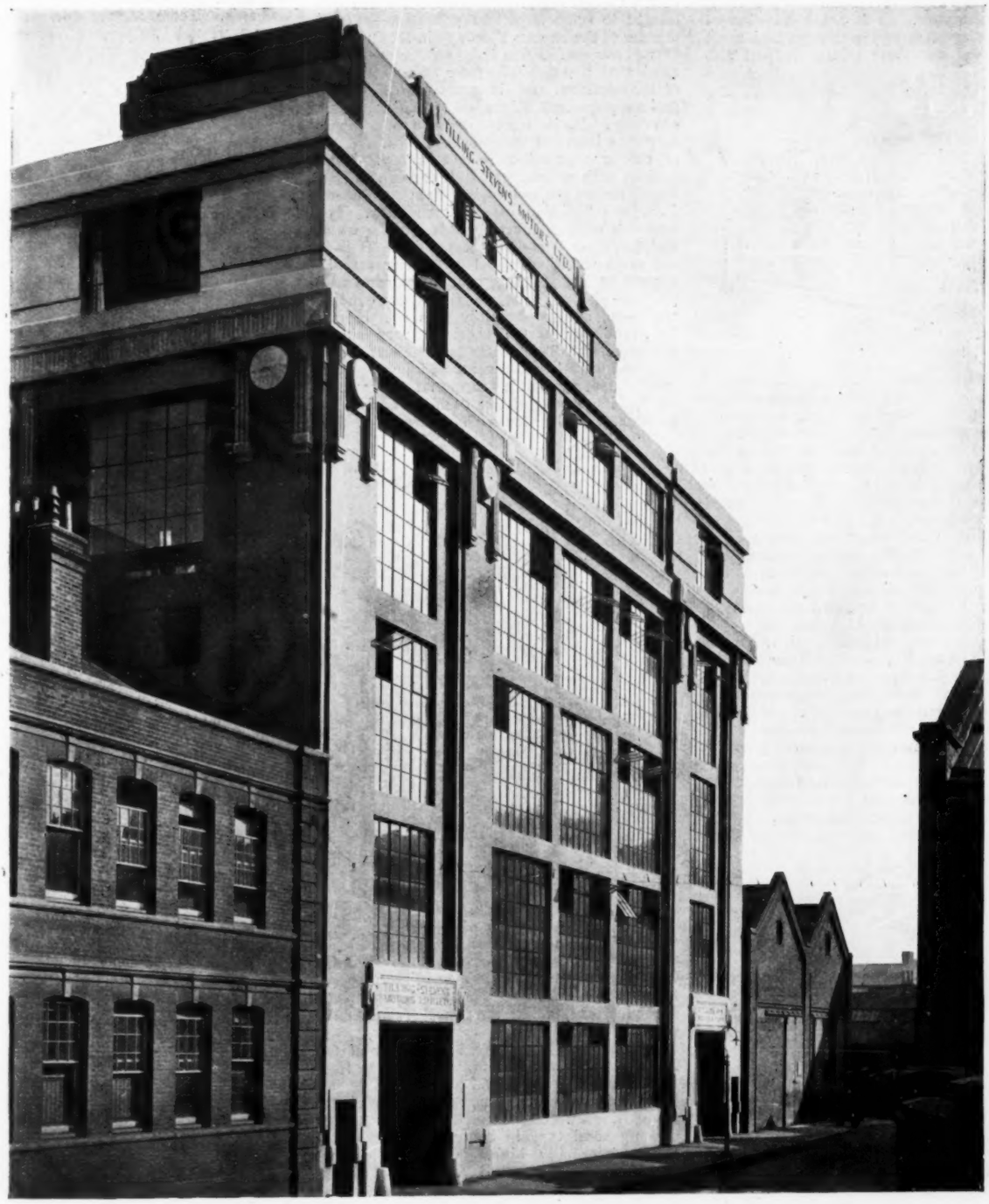
MESSRS. JOSEPHS, Architects.

The Mary Sumner House, Tufton-street, Westminster.

MR. CLAUDE FERRIER, F.R.I.B.A., Architect.

New Building for Swiss Bank Corporation, Gresham-street, E.C.

MESSRS. MEAKIN, ARCHER & CO., Architects.



Factory in Reinforced Concrete for Messrs. Tilling-Stevens Motors, Ltd., Maidstone.

MESSRS. WALLIS, GILBERT & PARTNERS, Architects.

BRITISH TOMBS: MODERN AND ANTIQUE

By W. R. LETHABY.

THAT our modern tombs are not what they might and should be is generally agreed; indeed, this is so well recognised that a semi-official report has recently been issued by a Committee appointed to inquire and report on this serious matter. It is not a question of cost, it is a question of the thought and heart which are put into these things: in part also

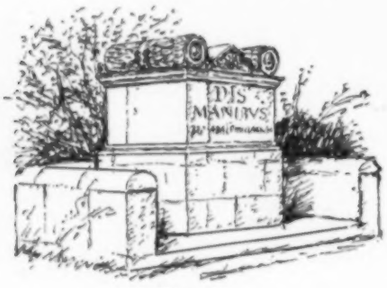


FIG. 1.

it is a question whether our tombs should be a national and local product or whether they should be manufactured abroad and imported so far as possible ready made of foreign material. I have long been interested in the local character of the tombs placed in our country churchyards up to about 1850, when the commercial flood fully set in and drowned our native traditions. A history of the art of tomb making in Britain should be done by somebody, not merely archæologically, but patriotically and poetically. All these things are of the mind and spirit, and it is those that need arousing; if only we cared we could do anything. The mind is lacking!

Having these sort of ideas in mind, I have been looking at the fragments of Roman tombs in the British Museum with the thought of trying to "see" them as they were when complete. Several are practically whole, and with these I shall not attempt to deal, for I cannot afford the time to draw them properly even if I could do so. My wish is to offer restorations of several interesting tombs which are now represented only by fragments, and these I can indicate by rough sketches. It may stimulate thought and stir up reflection if I

FIG. 2.

can suggest what tombs were like in Britain from 18 to 15 hundred years ago. Above all, my wish is to call attention to the subject of tombs generally, to their traditional forms, the style of lettering, the materials used, the wording of inscriptions. We have to re-consider all these aspects of a big problem and reform our ways.

The first tomb of which I give a restored sketch (Fig. 1) was an important monument in the eastern cemetery of London, which was erected to some important personage—a commander of the Roman Fleet (?) in the first century of our era. From its character one would think that it was hardly later than the middle of the century, and it must be one of the earliest important tombs set up in a London cemetery. It is represented by two stones only: the larger of the inscribed slabs, and one of the ornamented rolls on the top. Comparison with several tombs at Treves and elsewhere makes the restoration sure; the general form was like that of a Roman altar. The size was quite big, nearly 7 ft. on the front, and doubtless it rose about as high. It is in the same tradition as a large monument discovered at Pompeii long ago. That one had a setting—platform, steps, and surrounding walls—so almost certainly ours would have had, and my sketch shows a very simple arrangement. This, with its fine clear lettering, was a noble monument, and I wish when some modern public memorial is wanted for London a copy of this could be made. An excellent occasion for such a memorial, that

FIG. 3.

would have a purpose in it, would be the soon to come two-thousandth anniversary of Cæsar's expedition to Britain, and the probable foundation of London about the same time. Indeed, I should like the name of Cymbeline on it.

In the same Roman-British corridor at the British Museum which contains these fragments, are several headstones, the greater number and the most remarkable of which are from Lincoln. One from London is of the same general type in being what we should think abnormally high. If the whole class were considered together we should find this height characteristic, and the sharply triangular top is also frequent. The most interesting of the Lincoln tombs is one which has portrait busts of two women in the pedimental top. It was erected by Aurelius Senecio to his wife Volusia Faustina, who lived 26 years; also to Claudia Catiola. So in "Guide," but the Corpus of Inscriptions gives Cation, and to me it looks like Catiot. This tomb is puzzling; it has not been pointed out that one inscription is later than the other, but space had been left for it. This stone is rather battered and the portraits blunted, but we can see how truly beautiful it must have been when first set up sharp and fair; it is still a dignified and serious monument, yet evidently a piece of ordinary daily art (Fig. 2).

A broken piece of another tomb, also from Lincoln (Fig. 3), had some carving placed in a similar way above the inscription panel. I do not think that any restoration of this fragment has been suggested, but close examination of the traces of the carving shows that it is part of the drapery of a bust, probably a woman's. There is, perhaps, no proof that there were not two persons represented, as in

FIG. 4.

Fig. 1; but after I had made my restoration I found an illustration of a tombstone from Risingham, Northumberland, now at Trinity College, Cambridge, which is almost exactly of the type proposed. The Risingham stone was set up to the memory of the little daughter of Blescius, aged one year and twenty-one days (Fig. 4). A part of a third tomb from Lincoln in the British Museum is proof that some of the gable forms were even more acute than suggested for Fig. 3. This fragment is again only a small piece (Fig. 5). The portion of the slope which is left rises at an angle of about 60 deg. In the triangular space is a remnant of carving or incising, but it is too small to allow of interpretation.

A tombstone recently found at Wroxeter has a gable form fully as acute as this, and the space is filled by simple leafage. (See Haverfield's "Roman Occupation," 1924.) These pointed summits were traditional and had meaning or half-meaning; many tombstones found in North Africa have this form. Throughout there is rather a closer relation between Roman works in Africa and Britain.

Two other Lincoln headstones in the museum are more complete. These not only had triangular shaped tops, but extra jutting

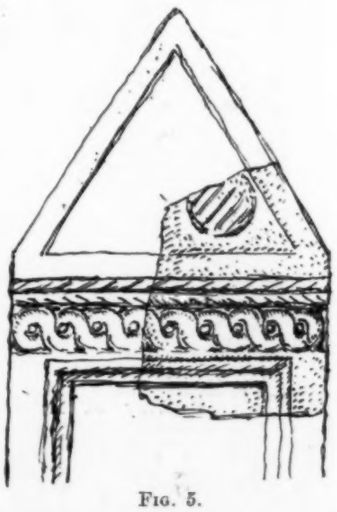


FIG. 5.

pieces at the sides as well (Fig. 6). Both of them are ornamented with similar six-pointed forms, and are altogether so much alike that they were probably the work of the same "firm." The ornamental element just mentioned was very widely distributed in late orientalized Roman art, and probably had

some meaning in the background. Was it a star?

Another interesting fragment of a headstone tomb in the same gallery is described as "Head of a Niche, with birds and pine cones: probably from the North of England. Purchased 1870" (Fig. 7). It is of dark red stone and is placed next to another sculptured fragment which seems to be of exactly similar ma-

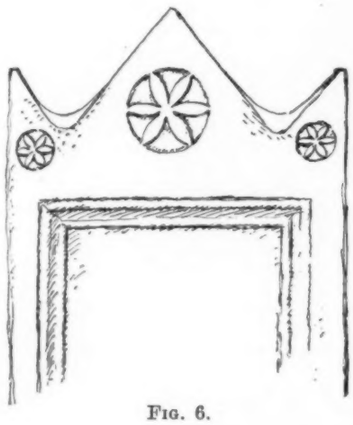


FIG. 6.

terial, and it was purchased in the same year. The latter is said to have been discovered at Old Carlisle, and it looks as if the "niche" stone may have come from the same place. This is about 2 ft. 2 in. wide, and the form of the fracture suggests that the stone was broken against the thicker substance of the head and shoulders of a figure. Doubtless the figure was standing, for the pilaster decoration at the sides implies a considerable height, and probably more tombs with a standing figure in a panel remain than those of any other type.

Now comparison with other tombs will show us that the birds are peacocks, as indeed may be seen, and that these and the fir cones are used as symbols. The sketches B and C, Fig. 7, are from tombs of Æliana and Julia Velva, in York Museum—the latter was found as lately as 1922. The peacocks are well-recognised symbols of immortality, and the fir cone was something of the same sort, the fruit of the Tree of Life; and it is found carved on some Roman altars found in Britain. This tomb, when complete, must have been an important work, thoughtful and semi-mystical: it suggests the cult of Isis or Mithras, and doubtless is of late third-century date.

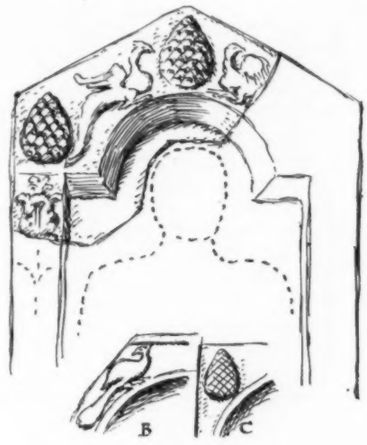


FIG. 7.

There is no room left in which to praise the lettering of these Roman tombs: clear, liberal and energetic. Again there is some secret we have lost. The large inscription on the monument, Fig. 1, while simple and right, is done with a mastery that makes it magnificent. A little time since I was looking at a long Roman inscription at Chichester which is nearly as good, and many tombs with smaller lettering are quite excellent. Our modern ones with few exceptions, whatever trouble has been taken in drawing the letters, are utterly lifeless in the doing—dreary, dull and dead.

The Roman tombs of London, Lincoln, York, and a score of other places, had dignity and even poetry; they were truly human, and the cemeteries in which they were placed must have been pleasant and beautiful places—gardens of the dead. Many of them have touches of simple tenderness which may stir our hearts across a millennium and a-half. Why was it so? Why have we lost the secret, and how can we get back a like quality in our modern graveyards? This is a big question, for memorials of the dead are, I think, the truest revelation of the minds of the living. They are indeed *our* monuments, for the dead don't care. I wish readers of *The Builder* would think it over, do what they can for the preservation of the friendly old stones in our churchyards, and consider ways of getting worthy, workmanlike, and local memorials of the dead once more. This is a craft which we might hope again to see exercised by hundreds of little masters in as many towns—if only we would care. Again, it is the caring that matters.

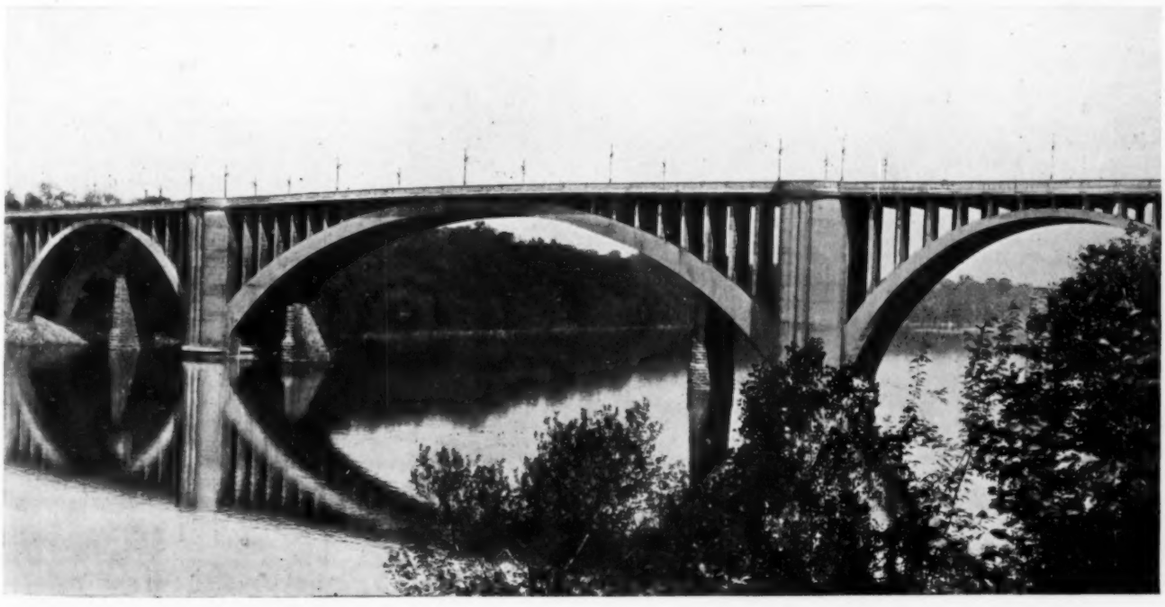
TIME, TASTE AND FURNITURE*

MR. GLOAG'S book is a very readable one, of 330 pages, carefully indexed and profusely illustrated by black-and-white sketches by E. J. Warne, and photographic reproductions of furniture and domestic interiors from "The End of the Middle Ages and the Beginning of Comfort," through the "Stuart Luxury and Puritan Plainness" to the Wren influences and the historic Chippendale and post-Chippendale designers, and, so on, to the Morris School and the twentieth-century designers, who have made—or are making—history in furnishing. Part I, about half the volume, deals mainly with the historical aspects of English furniture, but in no way aspires to be a "whole guide." The trite subjects are welcome for their pleasant manner of relation and the new matters doubly so for their newness. Parts II and III deal with Victorian taste and the Moderns, and therein the writer exhibits a just appreciation of the good and bad in Victorian furniture; and much of it was good in form and pre-eminently so in soundness of construction.

The last note in furniture was not struck when Thomas Chippendale was laid to rest in St. Martin's-in-the-Fields, and to-day there are designers who, progressing on logical lines, adapting old designs to modern requirements, and inventing new ones, are producing furniture which will be "collected" by future generations. The writer points the moral in his text and illustrations, dealing with the designs of such men as Gordon Russell, J. Henry Sellers, Henry Temple Smith, and others.

The title of the book is, perhaps, not the best that the writer might have adopted, but many things in this world are inadequately labelled. It is a book full of suggestion to the thoughtful reader, dealing, as it does, with the past and present.

* By John Gloag. (Grant Richards, Ltd.). 12s. 6d. net.



Cappelen War Memorial Bridge, Minneapolis. Longest span (400 ft.) in America.

AN ARCHITECTURE OF DREAMS

By REGINALD HALLWARD.

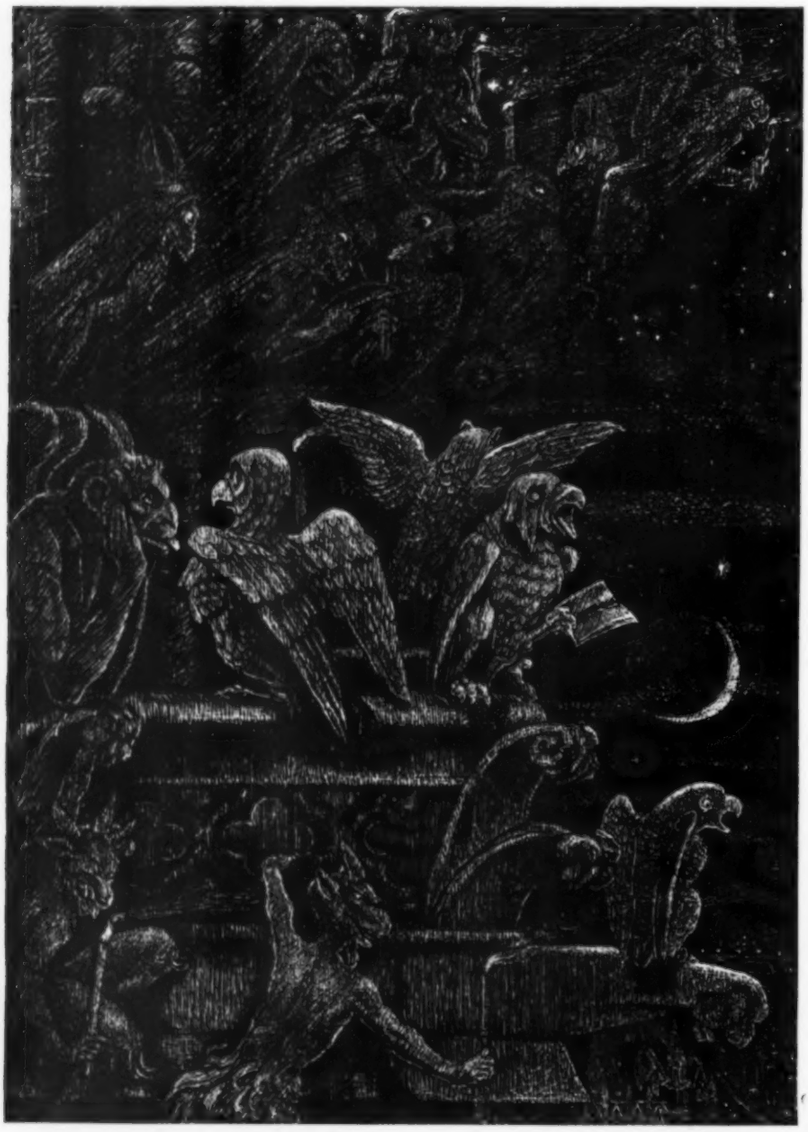
In recent months I have had occasion to find closer acquaintance with the Cathedrals of France. In one sense, so far away from present life they seem, it is as though one wandered in a museum, or gazed into the window of a dealer in "antiquité" or "objet d'art." Yet such is my passion for the beauty of the old, its dignity and unconscious loveliness so relates one to the best, that I have to bestir myself, lest in walking amidst the dead I yield to regrets and to disillusion in regard to my own age, which all the time I know to contain the best, for there is no better day than this one. It seems almost impossible to say any word which has not already been said about Amiens Cathedral, and yet there is another, and I should open my prayer book at the Burial Service to find the words which best interpret the emotions felt in gazing at this lovely sepulchre. The twilight ends with the night, and the night cometh for cathedrals. We cannot—we must not live on the past. It is sleeping, not waking, when we dwell only in regrets in this twilight of beauty and memory, were it able to hide from us the love we owe to our own time—its difficulties, its immense failures, its incalculable hopes.

What we may learn, however, is some greater freedom from our own too conscious aims, for I am sure that intuition and freedom have more to do with the splendours they captured than our own more cautious, logical and school-directed activities, wherein lies so little freedom for the spirit to essay unknown flights and adventure. It brings a feeling of happiness to look on the flying buttresses of Le Mans, sailing into the air in a wholly reckless intoxication of idealism, such a care ever since to those responsible for them. But what an inspiration! All great architects should be jerry-builders! It is the anxious morality of building for eternity which so unfortunately obsesses the bad architect. All the greatest things—in a sense—are a botch! but what a triumph over our mortality at the same time, to have superseded the devastating obstructions by committees of taste, and all the cowardly caution which we mis-name security. There is no security for beauty, for when once the passion of the soul is set aflame, there is nothing it may not do, even to removing mountains!—and what advisory committee ever did that!

I am sometimes told that the flying buttress is really imperfect construction, and arose from unscientific methods, and that on more scientific grounds it cannot be justified. I recall that most of the great things of the world reject our formulæ, and make their own laws, justified by their success. So it is with flying buttresses, for these mediæval craftsmen, freer than ourselves, made use of every opportunity to glorify construction, making it serve the higher needs of beauty, and in so doing they surpassed utilitarian purpose only—we too often stop where they begin. As adventure is to the adventurous, so they surpassed use and thus inspired it. And this modern argument for scientific construction, leaving out the further purpose which it has to serve, though it may suffice for the factory, or steel house, hardly suffices for a sanctuary. Who has not been moved, as, looking up through the great windows of some clerestory, he has seen the mighty arms of the buttresses outside flinging themselves across in protecting embrace of the sanctuary like a casket clasped by loving hands.

The clergy who so often prefer period windows to the art of stained glass, a wholly different thing, will find a surprising lack of conformity to their own preconceptions in the stained glass of the church of St. Maclou, behind the Cathedral of Rouen; for it is not even of its own date, defying classification. How are we to place, or even like it—for whoever liked a work of art for itself? When we have discovered its likeness to other things, reminded ourselves of this influence and of that, there is little intelligence left to bestow on its own qualities—which are intrinsically the only things that matter—and yet it is a quite ordinary experience to find the critic fumbling amidst "formative influences" and likenesses to other works, in order to account for a work of art, instead of looking at it for itself. This interesting but rather meticulous and over-wrought church of St. Maclou at Rouen is of the sixteenth century and contains in the chapels of the ambulatory some stained-glass windows which verily sing in design and colour, bringing all the associations of nature and its beauty into their threaded lines of colour, which quiver down the lights like sunlight through waterfalls. I do not know of any glass quite like it; it is a little outside of the tradition and has its own best, as though escaped from any other and had taken flight on its own wings. All the best in art teaches us not to be too solemn, too learned, "not bothering himself about forms: because it flows freely from his soul." This, however, may be learned from it—that only when art passes into the unknown, creating its own freedom, can we reach the essential beauty which passes understanding. It was no mistake that led our ancestors to speak of art as a "mystery." Fifty years of craft ideals and fostering of art have wrought havoc to our simpler perceptions. From this we are now escaping, seeking freedom again for our imprisoned souls.

It has been suggested, quite recently, with that curious negation which finds the remedy for bad art in foregoing art altogether, that cathedrals are much better without any more stained glass, and that plain glazing is better; they would even wish that it should be prohibited. So with curious inconsistency they condemn the good and the bad together. There



Notre Dame. The Chimeræ of the Towers.

"One could imagine these apparitions of the parapets, when midnight veiled the towers, coming off from their pedestals and going on a wild flight of their own, or otherwise gambolling and gossiping with each other."

is nothing more tiresome than this purism of negation in the intellectual, unwarmed by any sympathy with his own time, or realisation of the gifts it has also to bestow. Instances at once occur to one of cathedrals where the absence of beautiful glass to temper the light leaves the interior under a disagreeable glare. The drama of broken light, colour and shadow is absent, so advantageous in contrast to the architectural forms. Anyone acquainted with the cathedrals of France will recall instances of this, from which the cathedrals at Bayeux and Meaux are not exempt. I can readily admit the difficulty of procuring good glass, though it is not so much the case to-day when we take the trouble to find it. But I am not sure that such critics would recognise it where it is to be found, for their purely negative attitude bears the aspect of intellectual decrepitude rather than insight, and we need saving from such pessimism.

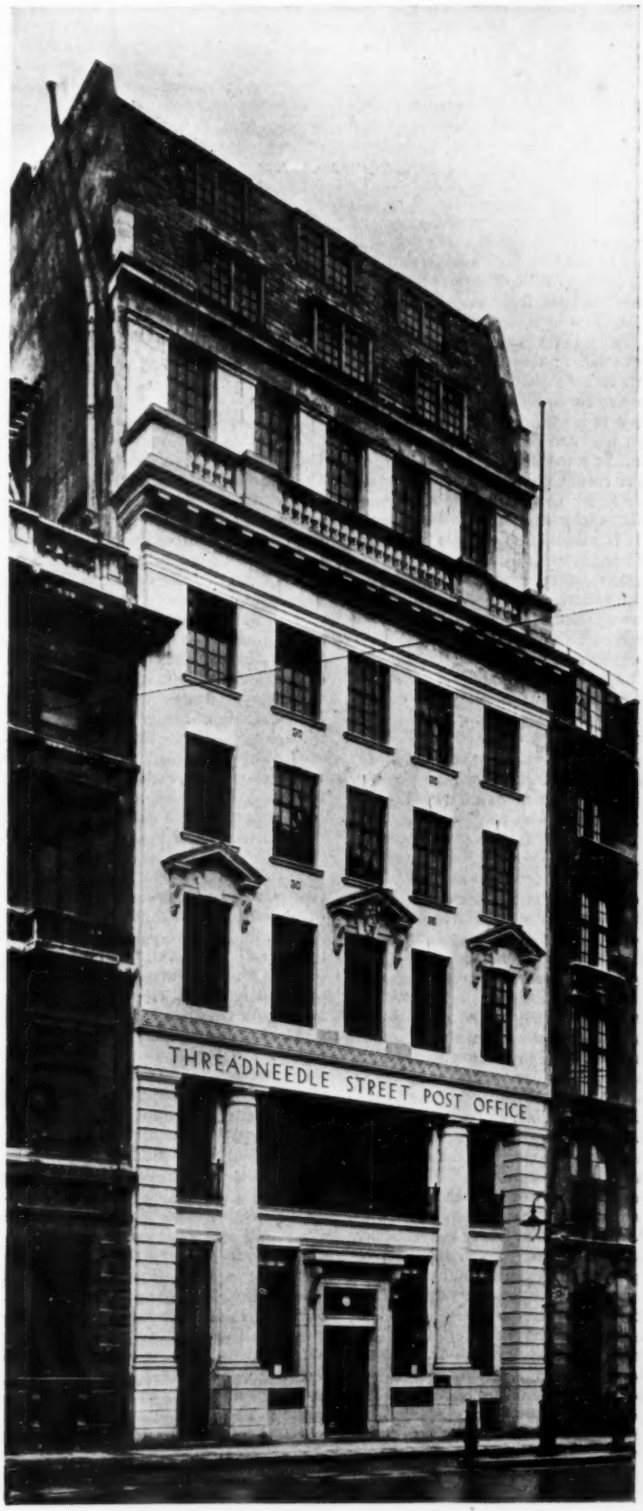
Beauvais' vast cathedral, or what there is of it, remains a fragment—a failure—for much of it tumbled down, and the re-erected piers of the sixteenth century have an awkward, engineering, even temporary look. It never realised itself again; the first fine careless rapture could not be recaptured, and so it remains an unrealised dream. Like Prometheus, it would have stolen fire from heaven, and was sent shattering down. In contrast to the great cathedral, the city itself is not so large; at the end of many of its ancient streets, the green fields and hills of the countryside peep in on us with a sense of greeting—the size, in fact, a city should be, not hemmed in by itself, but linked to the countryside. Industrialism's poisonous features deform it here and there, but it still remains a kindly, reposeful sort of place, in which one may feel the life of past years. Yet the change is already too great for this to link the vast cathedral to the life of to-day, from which it stands remote, calling to mind those inspired and mysterious temples of the far East, such as Angkhor and Boro-Budur, to whose inquiry about them the natives reply: "They were builded by the gods," an answer none so untrue, if we think of it.

Though the whole is greater than the parts, in the case of architecture it is one of bulk rather than precedence, and I am not sure but that personal craftsmanship, the artist's vision, is not the necessary crown or consummation of every noble building. We can all appreciate the taste and restraint in good building to-day, yet somehow it is all a little inarticulate and lacking in feeling. We respect the scholarship and accomplishment which are characteristic of good work—but without the perfume, the dream—without this added vision—it is not enough, and architecture droops accordingly. All architecture is at the best symbolic, interpretative, an architecture of dreams, not for our convenience, pride and comfort only, but for our souls.

The most impressive feature of the cathedral of Notre Dame is perhaps represented by those chimeræ on the parapets of the towers, which seem to blend with the elements as they watch over the city along with the stars; to which the church itself is but a plinth or pedestal. These spectral forms, wrought in a stone so hard that they remain to-day almost untouched by time, convey the sense of eternal brooding, and would seem to have alighted there rather than as being intentional parts of the building. What sculptor shaped these haunting forms in stone? Who fixed them there, to mock at us with the hint of meanings beyond the mere groping of dreams? What is the reality to which they would awaken us, as they watch from the heights on the fret of life in the Babylon below? It is the strange significance of these sculptures that gives such drama to the cathedral for those who feel their presence as they enter through the portals. And one can imagine that at night, when darkness veils the towers, these apparitions of the parapets take flight among themselves, or otherwise gambol and gossip with each other, until crow of cock gathers them back again to their age-long watch.

Sir G. Washington Browne.

Sir G. Washington Browne, who received the well-deserved honour of Knighthood in the New Year Honours, was elected in January, 1924, as President of the Royal Scottish Academy, and is the first architect to hold that position. The new knight is the architect of the King Edward Memorial at Holyrood. He was born in Glasgow, and, after an early training in London, came to Edinburgh to be principal assistant to Sir Rowand Anderson, architect. After the dissolution of that firm, his design was selected for the Edinburgh Public Library, and he was also architect for the Edinburgh Sick Children's Hospital, the extension of the Advocates' Library, and the British Linen Bank in George-street. From 1884 to 1886 he was President of the Architects' Association of Edinburgh. He was elected an Associate of the Royal Scottish Academy in 1892, and a full member in 1902, acting as treasurer from 1917 till his appointment to the Presidency.



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BUILDING CONTROL IN LONDON

INTRODUCTION.

THE need for some revision of the London Building Acts in force will be generally agreed, whether the point of view of the building owner, architect, or authority responsible for compliance with the present regulations be considered, and some action is likely to be taken at an early date as a result of the investigations made by Mr. G. Topham Forrest, F.R.I.B.A., the architect to the London County Council, during his recent visit to America. The Report prepared by Mr. Topham Forrest after his return from the United States was published in May last, and an abstract from that report was given in the issue of *The Builder* dated May 29, while further particulars were given in the issue dated October 30; but since those dates a detailed study of the report has been made and the comments here given on the control of building work in London are the result of this study.

Mr. Forrest is to be congratulated on his Report, which shows a thorough investigation of the matters dealt with; in addition the subjects are presented in an interesting manner and the whole Report is extremely well written. It will be realised that it is impossible to deal with each item in detail as the publication covers over one hundred pages, but a certain amount of detail is essential in any article on the subject of building control and some items must therefore be passed over to allow space for sufficient notes on those items of primary importance.

Those persons who are constantly engaged in dealing with building work in the London area and those who are responsible for the administration of the Acts know that the present regulations are unsatisfactory in many respects, and in some cases it is possible to comply with the letter of the Act while entirely disregarding the spirit, and amendment is necessary to remedy this condition of affairs. It is obviously very difficult to frame an Act of Parliament to cover the whole subject of building where no loophole is given to the person who will seize upon a weakness which can be exploited to suit his own purposes, but experience in the application of the Acts should quickly disclose such weaknesses and steps could be taken to overcome these if revisions were possible by simple procedure.

A recommendation is made by Mr. Forrest that all matters which can be dealt with by by-laws should be removed from the Building Acts and be incorporated in by-laws subject to revision from time to time by the Council as required, and there is no doubt that this is the logical course to pursue. It is essential to keep all regulations up-to-date, and under the present system it is difficult to encourage progress because new materials and methods are not provided for under the Acts in force, and any change in the Acts necessitate Parliamentary action which must obviously be more difficult and tedious than the more simple method of by-law revision. With regard to the general comparison of the regulations for building work in London with those in the United States, and with New York in particular, it is hardly sufficient to make this comparison without considering also the measure of stringency adopted by the authorities in the different cities. The architect who has carried out work in both cities will not hesitate to state that the enforcement of the regulations in New York is in many respects far less stringent than in London, and it is possible to ignore the regulations in the former city with a fair chance of success as regards future trouble with the authorities, whereas in London the regulations must be strictly adhered to. The London by-laws could therefore be framed to give more freedom than the New York by-laws, and the ultimate result would be practically the same. As a very simple illustration, the New York Code permits certain projections over, upon and under the public footway, and as drawn up the regulations may appear fully to protect the interests of the public, but in actual fact as executed these projections constitute a serious danger to pedestrians. Shelters can project wholly across the sidewalk, must be not less than 10 ft above the sidewalk, must be of incombustible material, and it would be reasonable to assume that the construction must be sound. Actually, many of these shelters are not carried on proper cantilevers or tied back to the main structure, but are supported by flimsy brackets fixed with a few rag bolts only, and under moderate snow or wind collapse takes place. The writer examined one of these after collapse outside a well-known picture house in New York, and he was amazed at the miserable fixing which had been adopted and apparently had passed the authorities. Again, areas and vaults are specified to be covered over at street level by approved metal gratings, but in reality there are hundreds of openings which are fitted with covers and gratings that stand up above the pavement level to such an extent that the unwary pedestrian will be constantly tripped up. This applies to many main thoroughfares, and the condition of the pavements with the projections above the general level and standing out from the building proper would not be tolerated in London for a moment. It must not be considered that this is an attempt to belittle building control in America, but some example is necessary to illustrate in a proper manner how a consideration of the regulations and the enforcement or otherwise will be essential to a comparison.

General Building Regulations.

Desirable revisions of the existing Acts include those dealing with the foundations of walls and the permissible pressures on the soil; and the requirement of concrete 9 in. thick, with a projection of at least 4 in. on each side of the lowest course of footings, should be abandoned for a more satisfactory by-law which specifies the maximum pressure on the soil and the minimum thickness of concrete based on the nature of the soil and the intensity of the load. Mr. Forrest recommends that the schedules of wall thicknesses should be reviewed and amended as found desirable, and there is no doubt that this is quite necessary. Apart from this general review, however, there are certain specific requirements in the present Building Acts as regards walls which must be dealt with, and mention may be made of two of these as examples. The first is the condition which states that for the purpose of determining the thickness of a wall the height of such wall shall be measured from the base of the wall to the top of the topmost story, *whether such wall is carried to the full height or not.* This is obviously unreasonable and it leads to walls of excessive thickness on the basement and ground floor where part of the building is carried up for several stories, and the remainder is roofed over at the first floor level. It is clearly sufficient to measure the actual height of the wall itself, and this height should be specified as the vertical distance from the base of the wall to the top of the topmost course; allowance should be given by a definite concession where intermediate ties or supports are provided in the height. In addition to this, the maximum pressure per sq. ft. for different materials at the base of the wall should be specified.

The second condition to which attention is called is that which deals with hollow walls. This specifies that when hollow walls are constructed there shall be a wall on one side of the hollow space of the full thickness prescribed by the Act. Considering that hollow walls are a recognised form of construction, this regulation must be looked upon as a typical example to illustrate the need of revision, because in effect it means that hollow walls are not allowed and any space must be given by putting an extra leaf of brickwork that has no constructional value. There is no doubt that the whole subject of external and party walls needs careful consideration and revision, and it is to be hoped that the new regulations will be framed on a sound scientific basis calling for the minimum thickness consistent with relative height and pressure.

The restriction as regards the cubical extent of trade buildings is one which has caused some dissatisfaction to building owners in London during recent years, and some relief in respect of this is necessary when the present Acts are revised. The recommendation contained in Mr. Forrest's report in connection with this matter deals with an increase in the height that may be permitted in buildings having an excessive cubical extent when the streets are over a certain width, but it does not appear to put the question of this type of building on a satisfactory basis. There is a tendency to consider the cube of the building in relation to the height as the crux of the whole matter, and this is a mistake. The construction, the exits and the fire appliances are certainly vital points to be considered, but provided a minimum standard of efficiency in all these is laid down it is difficult to see why a large building should not be carried up to the limit prescribed in the Acts for the smaller buildings. The necessity of making a special application to the Council should be eliminated, because this leads to delay and uncertainty, and the designer and building owner should be in a position to know exactly what can be done without recourse to the authorities. It is suggested here that the maximum cubical extent of buildings should be unlimited and the necessary safeguards provided by regulations which definitely specify (*a*) the type of construction when the cube exceeds a certain specified figure, (*b*) the maximum travel from any point in the building to a standard type of exit, and (*c*) the number and type of fire appliances to be provided on each floor based on the class of usage, when the cube exceeds, say, five hundred thousand feet. The height of the building should then be controlled by the general heights fixed for all buildings under the Acts, and these should obviously be governed by the width of the adjoining streets. High buildings have a decided effect on the traffic in the adjoining thoroughfares, and it has been proved in America that they seriously complicate conditions during the rush hours, and in this respect they are not desirable. When dealing with fire control mention is made in the Report of the extensive use of conveyors in America, and in consequence holes are made in floors and walls through which fire can pass. While it is necessary to make proper provision for cutting off the spread of fire in a general way, this clearly illustrates the greater freedom that is permitted in America and how every effort is made to allow the use of all modern equipment.

With regard to the various types of fire-resisting doors which are at present permitted by the authorities in this country, it is satisfactory to know that this subject is to be thoroughly investigated by the Architect to the London County Council, as the Americans are considerably ahead of us in this respect.

There are some sections in the 1894 Act which are not specifically mentioned by Mr. Forrest that should be amended, and among these are Sections No. 73 which deals with projections, and No. 74, dealing with the separation of buildings. The latter clause in particular is very unsatisfactory, both in wording and in application, as the letter of the Act can be complied with while the real object is ignored. With regard to the application for special structures, such as gangways connecting the front and rear portions of a building, some definite rule should be laid down for these, and no special application should be necessary. When the drawings and application are submitted to-day, a subsequent visit to the Council office is always necessary to put on notes of additional requirements, and as some items will be called for, even when all points raised in connection with numerous previous applications have been covered (in order apparently to get some red ink notes on the drawings)—it is advisable to leave off some obvious details, and thus avoid numerous extra conditions because finality will never be achieved!

The publication of all Acts and by-laws in one complete volume which would be placed on sale at a reasonable charge is a recommendation in the Report which will be welcomed by everyone, and if this is arranged in a convenient form to give easy reference to all by-laws that may affect any point under consideration, it will simplify matters for all concerned.

Another recommendation that will meet with approval is that calling for a re-modelling of the schedule of fees payable to the District Surveyors, because the present schedule is not based on the amount of work done by the Surveyor, but on the superficial area of the building, and this cannot be a satisfactory basis. Generally speaking, the London District Surveyors are very reasonable in the matter of fees, and on several occasions the writer has found a generous response in those cases where the fees properly chargeable in connection with alterations are out of proportion with the cost of the actual work, but when a great deal of work and responsibility are involved the Surveyors are not entitled to additional fees, and thus the present schedule is somewhat one-sided.

It is sufficient to state here that a thorough revision of the London Building Acts is very much overdue; all the subjects covered should be fully considered and new Acts and by-laws be obtained and published at the earliest date.

A comparison of the provisions to deal with means of escape from fire in the City of New York and in the area controlled by the London County Council indicates that there is no great difference in the powers possessed or the actual result of the application of the powers. In New York, however, full details of the requirements of the authorities are specified, and the building owner knows at the outset what conditions must be complied with, and thus the element of uncertainty is eliminated. In London, the details are not specified in the Act, but the Council is empowered to require the provision of means of escape reasonable in each case, and in consequence, nothing definite can be stated until an application has been made. It is true that general principles are followed in each case and the architect can quickly determine by experience what provision will be called for, and, if in difficulty, an interview with the responsible officials of the Council will be readily given. At such an interview, he will obtain advice and general guidance, which will enable the plans to be drawn up on satisfactory lines. While, however, the powers held by the Council are exercised in the most reasonable manner it would be far more satisfactory to have definite by-laws which cover all the requirements and at the same time provide for application to the Council where special difficulties arise or when these requirements appear inapplicable. The Architect to the London County Council recommends that in connection with any revision of the London Building Acts a clause should be inserted in the Bill to enable the Council to require adequate means of escape, reasonable in the circumstances of the case, to be provided to all buildings in which such trades are carried on as involve the attendance of the public in considerable numbers. This recommendation is practically the only one made in connection with escapes after the comparison with the New York regulations, and it is undoubtedly one which should be carried into effect; but it would be preferable to deal with the whole question of escapes for all classes of buildings in London by means of detailed by-laws which would cover employees, residents, and the general public, and such by-laws should be framed to give distinct advantages where fire-resisting construction is adopted, and adequate fire-fighting appliances, including sprinklers, are installed.

There is no more striking example of the need for keeping by-laws up to date than that provided by reinforced concrete construction, and it will be admitted that the American authorities have fully realised this fact. They have encouraged new and economical methods, and have assisted the use of modern methods by keeping the regulations in line with developments and making the regulations of the specification type which afford a guide to good practice rather than a series of restrictive clauses that stifle progression. Mr. Forrest fully appreciates the difference between the progressive spirit of the American laws as compared with the conservative attitude adopted in this country, and we may expect some reform on this point in the near future.

It is noted that the Report deals with the question of corrosion in concrete, and while many of the comments will meet with general approval it cannot be agreed that to ensure the preservation of the steel that mixtures containing some excess of cement are necessary. The whole question is one of density, and this is dependent on factors other than the mere proportion of cement. With regard to the serious corrosion of steel in concrete containing clinker and coke breeze, there is no need to stress this point, because responsible designers of reinforced concrete are fully alive to the dangers of these materials, and a stringent by-law dealing with this is absolutely necessary. In considering the question of the proportion of cement some attention should be paid to the great improvement in the quality and strength of Portland cement as now manufactured by reputable firms in this country, and in view of the need for keeping down the cost of building work generally the permissible stresses should be carefully reviewed, and new values determined which can be applied in future schemes. The difficulty with reinforced concrete regulations appears to be that the permissible stresses must be kept at the minimum owing to the uncertainty of the quality of the work that will be performed, especially when executed under inexperienced men. This could probably be overcome by specifying maximum figures which are permitted when the work is designed by a member of a recognised Institution and the scheme is carried out under a foreman who has previously qualified for a certificate on this subject, such certificate to be granted only by the authorities of some recognised body as approved. This method would put a premium on good work, and possibly eliminate accidents, while giving a greater confidence in the use of reinforced concrete. It is well known that the American authorities have paid considerable attention to the amount of water that should be used in the mixing of concrete to get the best results, and far more research work is done in the U.S.A. than in this country with regard to reinforced concrete generally. Laboratory conditions are very different, however, from the usual site conditions, and it is difficult to see how this point can be covered by regulations which will satisfactorily control the percentage of water used on the actual work. It is interesting to note that Mr. Forrest is proposing to arrange for experiments in connection with coloured concrete for houses on the Becontree Estate, and the results should be of value to architects and builders generally.

With regard to the permissible stresses in steel reinforcement the American and London practice are similar; but it is satisfactory to note that a recommendation has been put forward which will enable designers of London work to calculate on the basis of 20,000 lbs. per sq. in. as the sum of the primary and secondary stresses when the latter are included. This will enable the designer to adopt the most scientific methods of design without being penalised by the limit of 16,000 lbs. per sq. in.

The notes dealing with radial forms of reinforced concrete construction, wherein it is stated that there has been little or no demand for this type in England, are not very convincing. Any system which is not generally recognised and which requires a special application starts at a disadvantage, and generally speaking this disadvantage will act as a deterrent to many persons who would otherwise advocate and adopt the system. The regulations should be framed to provide for the radial construction where this is selected, and the London standards as regards fire-resisting floors should be thoroughly considered and revised to provide for modern methods. The recommendation to allow a tensile stress of 8 tons per sq. in. for steel frame buildings where "A" quality mild steel is used is a step forward.

There are many other items that call for attention in connection with the regulations for reinforced concrete and steel frame buildings, and it is essential to deal with these forms of construction in the new rules which are now being framed from an up-to-date standpoint, and not allow progress to be hampered by obsolete or unduly conservative methods.

As might be expected, the portion of the Report dealing with these subjects is one of the most interesting, because the Americans have studied and applied the principles of zoning on a scale which cannot be realised by anyone who has not spent some little time in the United States. Civic pride is a very real thing with the hundred per cent. American who holds even a small position in the public life of the city where he resides, and the pride is shown by personal efforts to achieve improvement in that city. The writer came in contact with the leading men in many of the large cities in the Middle West States, and was much impressed by the keenness with which the advantages of city improvements were put forward and the great interest that was taken in a subject which over here is practically ignored by all but a few enthusiasts. City planning and improvement in this country are dealt with by the authorities without any real assistance from the individual, and the latter is, apparently, only interested as to the effect on his own personal comfort or pocket without regard to the benefit to the city as a whole.

The objects of zoning and city planning in America are to improve traffic conditions by a more distributed use of the streets; to better social conditions in so far as this may be accomplished by preserving the amenities, particularly of residential neighbourhoods; to contribute to the efficiency of the city's life by the adoption of the laws of order and method in its lay-out, and the arrangement of its buildings, including a proper distribution of the various industrial, business and residential units; and to increase at the same time the visible beauty of the city as a whole. These objects are obviously ones which must appeal to all far-seeing citizens, and at the same time they can be applied in practice without inflicting undue hardship on any particular section or individual of the community. The authorities in the States are fully alive to the fact that any deprivation of individual liberty is a real public loss and it can only be justified by some greater public gain, and all regulations must therefore be "reasonable." Stated in general terms, zoning in the American States consists of dividing the city into districts, such as (*a*) Residential, (*b*) Commercial, and (*c*) Industrial, and in each of these districts the usuage, height and general arrangements of the buildings are controlled by regulations which are framed to protect the owners and occupiers in each district. In a residential district, for example, the house-owner will have no fear of a factory being erected in the vicinity of his home, because this would not be permitted under the regulations, and in addition the development of the property around him is controlled as regards height and character, and depreciation will not result from this source. Mr. Forrest recommends the application of zoning to London, and he should receive generous support in this recommendation because it must lead to better transport facilities and stabilisation of property values, in addition to many other advantages to the general public.

With regard to housing, it is not considered by the writer that any comparison can fairly be made between American and English methods, because the conditions are so different in the two countries and a common basis cannot be found. Some interesting notes are given in the Report, however, and a study of these will be useful to the architect. To those who specialise in school work, there are also some interesting particulars of accommodation and methods adopted in the States, while the establishment of art commissions is another feature of American civic life which is included in Mr. Forrest's comprehensive record of his visit to the U.S.A.

In conclusion, the writer would suggest that serious efforts be made to bring about a revision of Building Control in London at an early date; and, while it is not advocated that a slavish copy be made of American methods and regulations, it is to be sincerely hoped that the recommendations given in the Report will be dealt with in a broad-minded spirit and that a more drastic revision will be put forward which will include many items that are not specifically mentioned in these recommendations.

THE REPAIR OF LINCOLN CATHEDRAL.

AT the meeting of the R.I.B.A., held at 9, Conduit-street, on Monday evening last (Mr. E. Guy Dawber, President, in the chair), papers were read on this subject by Sir Charles Nicholson and Sir Francis Fox, architect and engineer respectively, for the work of renovation which is being carried out.

In the course of a general historical summary, Sir Charles Nicholson said the oldest parts of the present fabric formed the substructure of the west front, were the work of Bishop Remigius, and dated from the first few years after the Norman Conquest. From the existence of these very considerable remains of Remigius's church it was evident that the whole building was completed in a very few years from the date of its commencement, for the west front was, it may be presumed, the last instalment of the work to be taken in hand. It must have been no small undertaking to build a first-class three-towered Norman church between 300 and 400 ft. long in something like twenty or twenty-five years, and it was no wonder that we had found in the present generation that the masonry of Remigius's church was not solid enough to carry safely vast loads which had been piled upon it by twelfth-, thirteenth- and fourteenth-century builders, or to do work which it was never meant to do by its original designer.

The first alterations of Remigius's work were made by Bishop Alexander in the later Norman period. The three rich Romanesque west doorways were inserted at this time and the greater part of the nave was apparently reconstructed. The two west towers were carried up about 40 ft. above the point at which Remigius left them, and this work was designed in a comparatively light manner, the walls being double and pierced with three tiers of passages. This looked as if Bishop Alexander was not entirely satisfied with the solidity of Remigius's work. Alexander or his master mason must, however, have had considerable courage, as the nave of their cathedral was certainly designed to be vaulted in stone, the wall ribs of its high vaults being still apparent on the inner faces of the towers towards the western bay of the nave. Authorities differed as to the date of the high vaults at Durham, but those of Bishop Alexander at Lincoln might certainly be regarded as pioneer work, at any rate in England. With the exception of the Norman portions of the west end the whole cathedral had been rebuilt in the thirteenth and following centuries.

Although the recent strengthening of the north tower and the proposed consolidation of the south tower had become unquestionably necessary for the preservation of this part of the cathedral, it should be remembered that the west towers remained standing for 500 years after they had been raised to their present height, the tell-tale arch, though somewhat distorted and showing signs of movement having occurred since it was built, had not fallen, and although various attempts to strengthen the substructure had been made during the last 200 years it had never been possible until now to get at the real source of the trouble owing to the lack of means. The fact that in spite of all this the towers had stood as they had done made us marvel at the skill of the fourteenth-century builders, while we were staggered at their boldness.

In an account of the works of repair carried out in past times, Sir Charles referred to the work of James Essex at the end of the eighteenth century, to the work done by Gibbs (who may have become connected with the cathedral during the building of the library, which was attributed to Sir Christopher Wren), and to the work of Buckler, one of the architects in charge of the cathedral during the nineteenth century. About forty years ago an extensive scheme of restoration was set on foot under the late J. L. Pearson. After the death of Mr. Pearson the late Mr. Hodgson Fowler became architect to the Dean and Chapter, and between the death of Dean Butler and the appointment of the present Dean, Dr. Fry, very little was done to the cathedral beyond current repairs, though a new library was built and electric light was installed in the church.

With regard to the repair methods adopted, grouting the Norman walls under pressure was, of course, an obvious method of procedure; but he believed he was right in saying that Lincoln was the first instance of the systematic employment of metal reinforcement in combination with grouting, and also that the use of mechanical drilling and the adoption of pneumatic jackhammers for this purpose were novelties at the time they were introduced at Lincoln.

Sir Francis Fox said it would be helpful to give a list of the various disasters which had occurred to the cathedral. The following were the major events, but doubtless many smaller ones had taken place during the lives of each succeeding generation.—In the year 1124 the cathedral was gravely injured by fire. In 1185 it was razed to the ground by the great earthquake, with the exception of the two western towers and the east bay of the nave. 1244-45, the great central tower fell down. In 1547 the timber spire of the central tower, which was 300 ft. above the masonry structure, was blown down during a severe gale. When the great earthquake took place, recorded by the historian Roger de Hovedon, in 1185, the entire Norman cathedral was brought to the ground with the exception of the two western towers, the height of which is 212 ft.

Much to their surprise (continued Sir Francis) the masonry of the western front was found, on investigation, not to be properly bonded in with the towers; and there were serious cracks existing for the whole distance of 200 ft., and for the height of 100 ft. These fissures in the masonry seemed formidable enough to justify the anxiety of the Chapter of a later period; but even 200 years ago they were so much increased that the towers themselves were thought to be in danger of falling. As a preventive, the heavy structure, or the building up of the two main arches under each of these two towers, was advised and carried out under the direction of Mr. Gibbs, the consulting architect of that period, viz., 1726. Gibbs also advised the taking down of the lead-covered spires of the two towers; but as the citizens were antagonistic to such an extent that it culminated in a riot, it was decided to leave them until a more convenient time. The demolition of the spires took place in 1808, as far as one could trace, without any opposition. Even with this lessened weight, the movement still carried on; for in 1820 heavy iron cramps were applied, by the advice of an eminent architect, to prevent further mischief by the spread of the fissures in the towers. These bars are an inch thick and four inches broad, the inside ones being carried through the wall at both ends, and through a corresponding bar outside, and screwed to it by a powerful nut. Five of these hoops, both inside and outside, are attached at proper distances, between the roof of the church and the top of the towers. According to records, about six tons or iron are thus used on each of the west towers.

They intended (said Sir Francis) to take off these iron bands as the repair work proceeded. Two of those at the highest point had already been removed. Several of these iron bands were broken in two; in some cases there was a distance of 2 in. between the broken ends, which clearly showed spreading of masonry. In other cases, the bolt that carried through the wall had broken immediately behind the nut; some of the nuts had fallen to the roof below; others that were so rusted in had stayed in their position, thus giving a false impression of security. In addition to these iron bands, some hundreds of iron wedges had been used to level up the courses of the masonry that had dropped, owing to the spreading of the tower walls. The destruction produced by wrought-iron to masonry was almost incalculable, as it was laminated, and when the corrosion took place these laminations gradually opened, and by this slow expansion the whole mass of masonry was either lifted or broken off. In some cases, hundreds of tons of masonry were being lifted or forced from their original position.

In 1921 the arches in the bell-chamber opened to such an extent that the arch-stones had to be strutted to prevent their falling out. Also the ribs of the vaulting of the north-west vestibule had dropped, so that instead of their being concave they were convex and at the point of falling to the ground. The south-west tower was still urgently requiring attention, as the tell-tales, which were constantly being replaced, broke within a few weeks after their fixing. Owing to the continued spreading of the cracks in the walls, to-day there was not to be found a single bonding stone intact. Each one—and they were many in number—showed fractures from ¼ in. to 2 in. wide.

An unpleasant discovery made during the work on the north-west tower was the damage done by the "death-tick" beetle, or *Xestobium tesselatum*, the great enemy of most ancient timber roofs, which had since been discovered in many parts of the cathedral. The floors had been reconstructed in ferro-concrete. The second great cause of damage was the collapse, in the year A.D. 1547, of the high timber steeple or spire which had been erected on the central tower, and attained a total height of 500 ft. above the floor of the nave. Providentially it fell, more or less vertically, upon itself, and did not cause much damage to the roofs of nave, choir, and transepts, but it explained the great cracks found in the four walls of the tower and in the masonry floor of the bell-chamber.

The repairs on the north-west tower were approaching completion, thanks in great measure to the fine timber scaffold, 212 ft. in height, 35 ft. wide and 36 ft. in length, which was constructed of 9-in. by 3-in. planks, all standardised, before leaving the ground—each upright requiring three planks in the bottom portion 7 in. by 2 in. and two in the upper. It was the finest example of such a scaffolding in existence and was a monument to the skill of those who designed and constructed it. In no place was it more than ¼ of an inch out of truth. By the help of this scaffold the external masonry of the tower had been examined. It was found to be so weathered and broken that almost the whole 9 ft. of the top of it had been refaced. It also enabled the men to pay attention to any cement grout escaping on the outside of the walls, and immediately to apply wet clay on any leak and thus avoid staining the masonry face.

Sounding the walls was effected by gentle tapping with a one-pound hammer—throughout the entire fabric—and, wherever it indicated cavities, the necessary application of the nozzle and the forcing in of cement under pressure (delta metal ties having been previously placed in position) immediately rendered the walls sound and solid. In many places the masonry blocks were neither bonded nor tied in, and wherever visible cracks existed they were care-

fully investigated, for although perhaps only an inch in width was externally visible, they might prove to be anything up to 10 or 12 in. in the interior. Owing to the transept walls buckling, the vaulting had flattened to such an extent as to show cavities from 4 to 5 in. in width between the vaulting and the main walls, up and down each cell to the full length of the transept. These cavities were not previously located, as a great many others were, owing to their being full of accumulated dust and debris.

Thanks to the unceasing energy and courage of the Dean, who made one journey to Canada and two to the United States—the cost of the repairs of the central tower and adjacent transepts had been most largely undertaken by our transatlantic cousins—in memory of their ancestors who sailed in the "Mayflower" in A.D. 1621 from Boston in Lincolnshire and founded Boston in Massachusetts.

The weight of the vaulting in each of the two transepts was over 300 tons; and the approximate weight of the central tower was 13,237 tons. The total area of the four main piers at the base on floor level was 361 square feet. Assuming these bases were carrying the total superimposed weight, it worked out at 36¾ tons per square foot. The approximate weight of the north-west tower was 8,500 tons, equal to 19 tons per square foot on the foundations.

Considering the facts which necessitated the present repairs, Sir Francis said that in July, 1921, Mr. Godfrey, the clerk of works, was examining the north-west tower, and found considerable movement had taken place since the previous examination. Immediately tell-tales were fixed over every crack that could be reached with ladders. After this was completed, which extended over several months, they were all examined and checked, and those broken replaced. These were eventually again examined, and finally they found out where the greatest movement was taking place. This was at some 90 ft. above ground level. The tell-tales fixed at this height one day were found to be broken in two the next. On one occasion, October 29, after a gale of wind, they found tell-tales had opened 1-16th of an inch, of which a report was immediately sent in to the Dean and Chapter. After a thorough examination they came to the conclusion that it was only by grouting under pressure that the cathedral could be saved. Steps were at once taken to get the necessary plant to commence operations.

The grouting machine was invented by Mr. James Greathead about 1888 for use in construction of deep tunnels and the electric tube railways of London, and had been used with great success for the securing of notable road and railway bridges, Winchester Cathedral, and many other historic buildings right down to the present time. Owing to the extensive amount of grouting that would be required at Lincoln, and the thickness of the walls to penetrate, in some cases 20 ft. thick, it was decided to purchase a motor-driven air compressor. This was delivered and grouting commenced March 9, 1922. They very soon found out that, owing to the looseness of the rubble core, some other method less costly and also less dangerous, other than the ordinary hammer and chisel must be applied to enable them to get the grout right into the hearting of the walls. To this end jackhammers, driven by compressed air, were purchased. These tools had proved to be most effective from every point of view. It was nothing unusual for two men to drill a hole in the walls to a depth of 12 ft. in one hour, in what would otherwise require the same number of men five to six days with the ordinary hammer and chisel method. This was not the only point they had to consider. The condition of the masonry was almost at the point of collapse, and would not stand the heavy blows of the hammer; whereas with the jackhammer, although it made a terrific noise in working, it gave a percussion blow, with very little jar to the building. By these means they had drilled into the masonry of the north-west tower up to October 28, 1925, inclusive, 11,774 holes, approximately 5¾ miles in length, and the number of holes in the centre tower and transept 10,623, approximately 3½ miles, making a total of 9¼ miles. An accurately written record was issued week by week, and, in many instances, drawings made showing the exact position where every hole had been drilled, the line it took, and where every gallon of grout had been forced in.

By this method of grouting they were able to repair the most ancient and beautiful buildings, without in the least degree defacing their antiquity. At the same time they practically rebuilt them, making them many times stronger than they were when first erected, without so much as moving a stone. It might be of interest to know that the improved method of grouting, and the drilling of the walls by the jackhammers, which originated at Lincoln, had been adopted and was being carried out at Durham Castle, St. Paul's Cathedral, and elsewhere.

There was a great deal of controversy for and against grouting while St. Paul's was appealing for funds in the early part of last year. There was bad as well as good grouting. Unless this method was carried out in a right and scientific manner, the state of the walls sooner or later would be worse than before. The proper order was first to blow out all dust and dirt that was in the loose core, then thoroughly to wash out with water under pressure, continuing to blow water in until it ran out of the surrounding places quite clean. While the core was still damp, and in a receptive condition, the cement grout must be blown in also under pressure. This was varied according to requirements, 40 lb. to the square inch being the average employed. If the core be not thoroughly cleaned, you simply filled the void, and the cement would not adhere; consequently you had added weight without adding strength to your building. In addition to the grouting up of the cracks, they were reinforcing masonry with delta bronze cramps. These varied from 9 in. to 14 ft. in length, and ¼ to 1 in. square, and had a tensile breaking strength of 30 tons per square inch. Up to October 28 inclusive they had inserted 5,406 cramps in the north-west tower, and 2,961 in the central tower and transepts, a total weight of 13 tons 4 cwt.

To prevent any possibility of further spreading of the tower walls, they had (in the passages which were in the thickness of the walls) constructed strong reinforced concrete beams. Six had been provided at various heights, the top one of these forming the roof-plate. The four octagonal turrets were anchored to each of these beams, well braced at the angles. It was estimated that each of these beams would stand a strain of not less than 800 tons. It was intended to carry out this same method of bonding the four walls together in the central tower. One beam was completed in the lantern and the reinforcement was in position ready for the concrete in the clock chamber, 125 ft. above floor level. At each corner the metal was also placed at an angle of 45 deg., thus forming a strong tie. A similar beam had also been constructed on the clerestory passage floors, in both north- and south-west transepts.

Up to October 28, 1925, inclusive, they had forced into the walls and surroundings of the north-west tower 22,944 gallons of grout, equal to 3,671 cubic ft. of space, and weighing approximately 104 tons, and into the transepts and the central tower, 10,372 gallons of grout equal to 1,659 cubic ft. of space, and weight 47 tons. What with the grout, the constructing of the reinforced beams, and rebuilding of the masonry in different parts, and reinforced concrete floors, they had used a total of 446 tons of cement, and 471 tons 19 cwt. of sand. To September 30, 1925, inclusive, 2,177 new stones, equal to approximately 1,766 cubic feet of space, had been used. This did not mean that they had increased the total weight of the building; far from it. Against this they had to calculate the hundreds of tons of debris, old timbers and ironwork removed.

They found that by care, and proper application of material and the excellent tools used they had, in places, been able in one hour to do work which twenty years ago occupied a week, and which then cost £1, but to-day one shilling. The result was that the total cost, so far, had been most moderate and bore no comparison with what the old system would have amounted to. The expense to-day on the north-west tower amounted to £29,319, and on the central tower and transepts to £11,317. The whole of the work was carried out by direct labour by local workmen; the leading men having been specially trained for the specific branch upon which they were engaged.

Discussion.

A vote of thanks to the lecturers was proposed by THE VERY REV. T. C. FRY, D.D., Dean of Lincoln, who, after referring to the success of his appeal in America for funds to carry out the work, said one of the reasons why the work of repair had gone on so well and so smoothly was that they were one of the happiest of Chapters, not only between the members of the Chapter but also between the Chapter and their technical advisers. It was probable that a further £75,000 would be required to complete the work now in hand.

MR. BASIL MOTT, C.B., said his experience of grouting with the Greathead machine went back to the time when he was resident engineer on the first system of underground railways built in London. In the association of Sir Charles Nicholson and Sir Francis Fox there was a splendid example of what could be achieved by co-operation between architect and engineer, and the importance of this friendship between those responsible for the work could not be exaggerated. If a more general co-operation could be secured between the two professions it would be not only in the best interests of architects and engineers but of the public as well. If the two professions could discuss together matters of public importance they would be able to present their views with a united front which would be of great value to their fellow-citizens. He was at present chairman of a joint committee of architects and engineers considering a question of national importance, and no one more than the engineers appreciated the value of the assistance they had received from the architects.

MR. R. S. GODFREY, Surveyor of Lincoln Cathedral, exhibited some samples and models to show the efficiency of the methods adopted for the repair of the fabric, including samples of the delta metal reinforcement and sections taken from parts of the stonework which had been grouted. The latter samples showed that the fine particles of cement were blown into the smallest interstices, and that the two sides of the fissure were so thoroughly bonded together that the wall was actually stronger than the original stone. He had also carried out some tests to ascertain whether Portland cement expanded and contracted to an extent likely to lead to further trouble, but a series of tests carried out over a period of four years showed that there was no variation whatever under different conditions.

DR. H. S. CRANAGE said in the repair of ancient monuments God helped them who helped themselves; they had to attend to the laws of nature, and if they went to work persistently they would find out her secrets. They were all glad to know that the work now in hand would make secure the fabric of one of our greatest architectural treasures, and they owed a great debt of gratitude to all engaged on the work.

DR. R. MACKAIL said Lincoln was the queen of English cathedrals: Wm. Morris said that as soon as he got inside it he felt perfectly happy, and a building which had that effect certainly fulfilled its purpose. It was good to know that the skill of architects and engineers could preserve such a precious monument for posterity.

A vote of thanks was heartily accorded to the lecturers, who very briefly responded.

THE PLANNING AND EQUIPMENT OF THE SMALL HOUSE.—I.

By EDWIN GUNN, A.R.I.B.A.

Labour Saving.

THE "stunt" word governing the small house is "Labour-saving," which in its sphere is as blessed as Mesopotamia used to be before it became better known. When the word is used as a bait by the speculative builder (modern edition) it usually means that he has saved himself the labour of installing any form of cooking apparatus whatever, but has magnanimously provided a flue for attachment of coke boiler and a gas pipe capped off for attachment of gas cooker. Sometimes also he has squeezed out the scullery and reduced the "kitchenette" to exiguous proportions, fortified by the popular press and its fatuous diagrams, proving how many miles may be traversed by a forgetful housewife in assembling material and apparatus for brewing a cup of tea.

Real labour-saving is part of the trend of the age, which has lost all taste for work for its own sake, having come to regard it as a distressing necessity thwarting man's right to complete indulgence in the ideal life—an uninterrupted round of golf, tennis, motoring, wireless, dancing, and "the pictures"—or boredom!

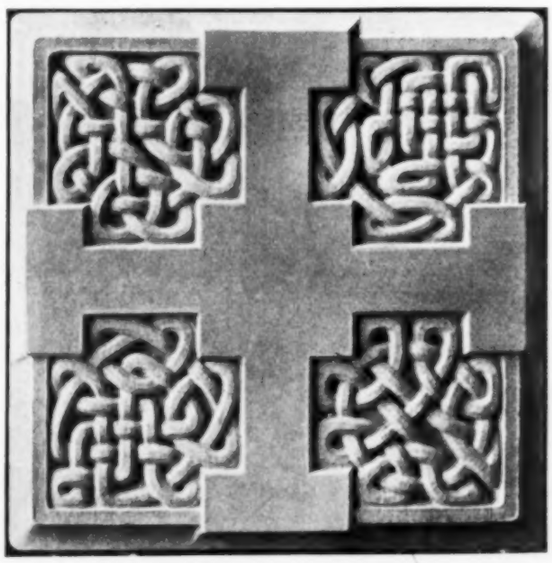
The movement quickly produced its own press—journalistically it was "good business"—a pretext for booming all sorts of gadget fittings, and as such it may be presumed to help trade and progress. Apart from extremes, however, the increased interest which is being taken in home arrangement is all to the good, and there is no doubt that the loose and sloppy planning of the mid-Victorian house is now generally much surpassed in economy and convenience, and that the resources of the present-day house builder are much widened as to materials and fittings. A side line of the labour-saving stunt is the passion for bungalows. Most people outside the building world would have an idea that a bungalow is necessarily cheap—but this is true only within very narrow limits, and even within those limits there are disadvantages which many people fail to realise until too late. The smallest dwelling of all, with, say, three rooms, may be more economically arranged in one layer than in two, and it is possible to design up to, say, six rooms on the ground level alone without great sacrifice of convenience and cost, but beyond that the designer who has to keep an eye on price is torn between the opposing difficulties attending a square plan with unlighted interior and wasteful roof, and a long-drawn-out plan with greatly increased external walling and either costly waste passages or intercommunicating rooms. The area of foundations and roof for a bungalow, of course, exceeds that for a cottage of similar content, but there are other disadvantages less commonly realised: for instance (1) Area of ground used. Assuming a dwelling for a man of moderate means in the normal outer suburb, where houses stand uncramped on sites up to about quarter acre in extent, the bungalow obviously covers about double the ground area as compared with the house (though to be fair it must be admitted that its shadow is less), yet not quite so obviously it demands a wider site with increased frontage charge and probably paving costs. (2) On a cold clay soil the wisdom of interposing a story of warmed and ventilated rooms below the sleeping apartments may be suggested as real, because (3) the sleeping rooms of a bungalow generally strike one as less airy than first floor bedrooms. This may be attributable to several causes. Foremost perhaps is the fact that air currents near ground level are more obstructed and less brisk; next is the absence of the natural impetus derived from the presence of warmed air in the rooms below; and last—but by no means negligibly—the practical difficulty of the open window. There are two reasons why people in bungalows cannot treat their bedroom windows with the freedom enjoyed by house-dwellers. The first is cats; the second housebreakers, pilferors, and "peeping Toms." The open ground-floor window offers so readily that "opportunity which makes the thief" that it becomes necessary (or at least prudent) never to leave a bungalow even for half-an-hour without seeing that all windows are fast. House-dwellers may—and do—leave upper floor windows open, and so avoid that stuffy feeling which attaches to any shut-up house.

Planning the Small House.

Good planning—which is the real labour-saver—is the basis of the successful small house. And by good planning is meant not merely juggling some rooms together until they fit, and then contriving to roof them. Borrowing an analogy, it is a relatively easy matter for a writer to express himself understandably and without conspicuous outrage on the rules of grammar, but the result is not necessarily literature. To achieve that distinction there must be some underlying idea worth expressing, put into words so that the impression conveyed to a cultivated observer is that it could hardly have been done otherwise. In the same way a really good plan exceeds a mere arrangement of rooms by this apparent inevitability. Every attempt to revise or readjust essential though apparently minor details will involve derangement of other components, and may prove a complete impossibility without sacrifice of all the elements of distinction. This is by no means the least of the trials of architects in their relations with their clients.

Probably every architect has a different approach to the problem of evolving a new plan, and will find something interesting in hearing the methods of others. Quite often one suspects there is little method used, but the following outlines suggest a course which the writer has usually endeavoured to follow. Having obtained particulars of the accommodation desired, formed some judgment of the mode of life of the occupants, and studied the site and its surroundings, a decision is taken as to the desirable position and aspect of the controlling points such as entrance, side entrance, living-room, dining-room, bathroom (with exposed plumbing), staircase, and so on—this both with a view to aspect and outlook and to visibility or the reverse. Concurrently, it is settled whether a "natural" or formal type of plan is most suited to the surroundings and whether the site levels call for a narrow plan or will allow one approaching a square.

Sketch plans in the roughest form (usually made during rail journeys and on backs of envelopes or in pocket notebooks) are then tried out along various lines until an arrangement which appears to combine convenience with constructability and the hope of pleasing form is achieved. Having so secured the germ of a plan, the next thing is to visualise the general shape of the resulting building, which usually means "How is it to be roofed so that a good outline and unified mass will result?" Many a promising plan is abandoned at this stage. Assuming, however, that the way to a solution can be seen, with the sacrifice, maybe, of one or two plan features which appeared to be possible but are found insusceptible to management, the materials in which the design is to take shape are next considered, and a structural and colour scheme chosen and recorded. Drawing now properly begins, and if time allows it is believed a very good thing to complete a set of quick and not over-accurate ¼-in. scale drawings at a single sitting and put them quite away for a few days for further study. All sorts of things come in at this stage—the plan must be looked at from many different standpoints. An otherwise hopeful one may be barred because, say, the kitchen door carelessly open will reveal a vista of the sink to visitors at the front entrance, or because the only place for the bathroom is over the drawing-room. Or again, the plan though convenient, may appear fundamentally bad in engendering a cramped feeling and lack of the sense of space at vital points—or the external sanitary plumbing may be unduly advertised—or the only practicable roofing scheme may be a pyramid or something approaching it—or the chimneys may defy all attempts at grouping. The architect may well know that few but himself and his fellows will attach much importance to any of these points—he will overcome them for his own satisfaction chiefly. Houses containing these and worse faults are built and sold daily, and are found habitable; but, again returning to our analogy, much ephemeral stuff is also produced in journalistic and literary fields which secures an audience but entirely fails to edify. A good building—which means a good plan—should do that, as well as satisfy, more or less, the practical demands of shelter and bodily comfort.



A St. Chad's Cross—Part of Recumbent Memorial.
Designed and Executed by MR. EDWIN SMYTH, of Sunderland, for the Rev. F. Jarvis. Stone measures 20 in. across.

SPECIFICATIONS—I

BY H. V. MILNES EMERSON, A.R.I.B.A.

SPECIFICATIONS writing, particularly to the younger members of the architectural profession, is probably the most difficult subject to be mastered, embodying as it does a description of all the materials required and the workmanship involved in the erection and completion of a particular building. Hitherto there has not been published a working specification that can be applied generally to the ordinary work involved in building operations, and it is felt that a series of articles will supply that want. To prepare a proper specification one must possess a complete knowledge of materials and construction, and whilst it will be the aim to keep this specification within reasonable limits, such information will be introduced upon materials and construction as is likely to prove most useful in compiling a specification.

A specification should describe in a concise form the work to be done and the materials to be used in the erection and completion of a building. The architect should always remember that a specification is a document forming part of a contract, and a specification that is badly drawn or worded leads to trouble and probable loss to the architect, contractor, and client.

All working drawings and details should be prepared before the specification is drafted, notes upon any important point or method of construction being made during the preparations of the working drawings. When writing a specification a good plan is to have the drawings pinned to the wall or to trestles. This is a method adopted in large American offices, where an assistant, who is often engaged solely upon specifications, dictates the specification to a stenographer as he passes from drawing to drawing. The advantages of having the drawings in front of you are obvious; mistakes are avoided and the continuity of your thoughts will not be interrupted in having to search for some particular drawing. For easy reference the contents of a specification should have each item numbered and indexed either numerically or alphabetically.

With these few remarks we can proceed with the compilation of the specification, which is commenced somewhat as follows :—

SPECIFICATION OF WORKS to be done and materials to be used in the erection and completion of (here describe the building) in South-street, London, Middlesex, for .....in accordance with drawings prepared by and under the supervision of

Mr. .....
Chartered Architect,
City Buildings, London, E.C.1.

January, 1926.

Drawings.

Item.

1. The following are the drawings forming part of the contract.

   No. 1.—Plans, sections and elevations. Scale 8 ft. to an inch. (Then follow on with number and description of remaining drawings.)

Conditions of Contract.

2. The general conditions and form of agreement used for this contract is that issued by the Royal Institute of British Architects.

   (Until the National Standard Form of Conditions of Contract is agreed, the Conditions of Contract dated October, 1909, issued under the sanction of the Royal Institute of British Architects, in agreement with the Institute of Builders and the National Federation of Building Trade Employers of Great Britain and Ireland, is temporarily the form approved by those bodies.

   If this form of agreement is used attention should be given to clauses No 20 and 21 which as present worded do not give sufficient protection to the client against accident or damage. In Clause 20 the client is only protected against liability under the Workmen's Compensation Act, 1897, or any amendment thereof. In order to bring this clause up to date the words after " his servants or agents and against any liability under " should be deleted and the following words added: ANY ACT OF PARLIAMENT OR OTHERWISE. In Clause 21 no further provision is made for liability beyond the Workmen's Compensation Act, 1897, and the words after " and also in respect of any claim " should be deleted and the following wording or its equivalent added : FOR COMPENSATION OR OTHERWISE MADE BY ANY PERSON IN THE EMPLOY OF THE CONTRACTOR OR OF ANY SUB-CONTRACTOR, UNDER ANY ACT OF PARLIAMENT OR OTHERWISE AND FROM ALL THIRD PARTY RISKS. The last three lines beginning with " He shall be responsible " &c., remain intact.)

   Whilst upon the question of liability, attention is drawn to the appointment of the clerk of works. He is usually engaged upon behalf of and paid by the employer. If he meets with an accident during the course of his employment, and if under any Act of Parliament he has a claim for damages, the employer would have to pay such damages awarded. The architect should provide for this contingency and thus relieve the employer from such liability.

Preliminary Items.

Note.—Items appearing in the Conditions of Contract need not be repeated under this heading, unless such items require to be more fully described.

3. LOCALITY.—The locality of the building should be given, together with distance from nearest railway station, whether uphill, and such other information that would be of service to the contractor.
4. VISIT SITE.—The contractor is to visit site and to make himself acquainted with the nature of the ground and the surroundings.
5. NOTICES.—The contractor is to give all necessary notices to the local and other authorities concerned, pay all fees and furnish the required plans.

   Note.—Under the London Building Act two days' notice is required by the District Surveyor before the work is commenced. In country districts the usual custom is to deposit a set of the plans with the local authorities for approval by the Council, which usually meets once a month. Providing the plans are in compliance with the local by-laws and the work is urgent, permission is usually given for the contract to be started before the Council's approval is obtained.

6. FOREMAN.—The general foreman shall keep copies of all drawings, detail drawings, specifications, letters and other instructions at the works.

   Note.—Such documents upon the works will be found very useful for reference.

7. MATERIALS AND WORKMANSHIP.—All materials and workmanship shall be the best of their respective kinds.
8. WATER.—Provide a clean water supply for the works.
9. TEMPORARY STRUCTURES.—Provide and maintain a suitable office for the general foreman, also messrooms, latrines and sheds for the use of the workmen and the storage of cement and other materials, and clear away at completion of works.
10. CLERK OF WORKS' OFFICE.—Provide a suitable office for the clerk of works with the necessary heating, lighting and fittings, and such attendance as may be necessary to enable him to carry on his duties. The whole to be to the satisfaction of the architect and to be cleared away at completion of the work.
11. PLANT.—Provide all necessary scaffolding, planking and strutting to excavations, rules, moulds, templates, centres, including flat centering to concrete floors, and whatever else may be required for the completion of the building.

    The contractor is to allow other tradesmen employed by the architect on behalf of the employer to use plant, fixed or other scaffolding, latrines, sheds, &c., and to provide water with all necessary hose, taps, tanks, &c., for their use.
12. HOARDING.—Give any necessary notices to adjoining owners and local authorities and construct a proper close-boarded hoarding to..... not less than 7 ft. high, as may be required and to meet the requirements of the local authority.

    The hoarding is not to be used for advertising purposes, and the contractor is to keep the hoarding free from advertisements, by whomsoever fixed.

    Note.—If the hoarding is to be used for advertising state whether contractor or employer is to let same.

13. PULLING DOWN.—Take down the buildings, &c., on the site, and remove the rubbish and old materials, except such of the old bricks, &c., as may be suitable for use in the foundations of the new building, or for hard core.

    Note.—Such old materials that are to be re-used should be specified in detail.

14. SHORING.—Provide and maintain any shoring that may be necessary. Remove same when done with and make good any damage.
15. FOOTWAY.—Take up the footway paving, or crossings, stack same, and relay and make good as may be necessary to the satisfaction of the local authority, or pay their charges for carrying out this work.

    Note.—In some districts the contractor is not allowed to carry out this work, the local authority concerned employing their own men to do it.

16. WATCHING.—Provide for day and night watchmen, with all necessary lights, guards and barriers.
17. CLEAR SITE.—Remove all trees, bushes and rubbish on the site, grub up all roots which may be met with in digging the foundations. and cart away.

    Note.—It should be distinctly stated whether the contractor is to cart this material away from the site or not. If the employer wishes to reserve any of the material, such as trees, it should be specified that the contractor is to remove same from site and deposit where directed by the architect, and to cart away the remainder.

18. PUMPING.—Keep the site and all foundations and excavations free from water.
19. ATTENDANCE.—All trades to give the requi site attendance on all other trades, perform all cutting away and make good after.
20. PROTECT WORK.—Protect from injury stone and other work where required, or directed, and protect all floors and pavings from sun, frost or drying winds until they are set.
21. OLD FOUNDATIONS.—Grub up the old foundations of existing buildings, empty any old wells or cesspools on the site, and fill in with hardcore well rammed to receive concrete.
22. MAKE GOOD NEW WORK TO OLD.—Remove walls, partitions, roof, &c., where necessary, cut away projections, level, clean and prepare old walls before building new work upon same. Cut, tooth and bond all new work to old, and make good to walls, ceilings, cornices, plaster, floors, skirtings, and all other work disturbed.

    Note.—Items Nos. 21 and 22 relate to work to be done in making alterations and additions to an old building.

23. RUBBISH.—All rubbish that may accumulate during the progress of the works is to be removed from time to time, and carted away as required.
24. LEAVE CLEAN.—Clear out all rubbish, shavings, &c., from under boarded floors, before same are laid. Twice scrub all floors, stairs and pavings, clean all windows inside and out, and leave the whole of the premises clean and perfect at completion.
25. CONTINGENCIES.—Provide the sum of £.... for contingencies to be used at the discretion of the architect and the unexpended amount to be deducted from the contract sum.
26. PRIME COSTS.—*Note.*—In Clause 27 of the Conditions of Contract the meaning of prime cost is defined, but, unlike the provisional sum, it does not confer upon the architect or the employer the right to expend these sums,

but distinctly states it applies to goods to be obtained and fixed by the contractor. If the architect wishes to retain this right the clause would read as follows :—

The expression " prime cost," or the initials " P.C.," wherever used in any items are to be taken as implying the net cost price after deducting all trade and/or other discounts (with the exception only of discount for cash), and as also including delivery. The contractor must allow for his profit, and also, unless otherwise specified, for cost of taking delivery and any other incidental expense, including such as may be incurred for unloading, unpacking, moving, storing, and the care and preservation of the goods after delivery. The architect shall be at liberty to obtain quotations for and to instruct the contractor to order the articles, &c., covered by such items from any tradesmen he (the architect) may select and at the prices stated in those instructions. Prime cost items not expressly directed in writing by the architect to be used, shall be deducted as they stand either wholly or in part, as the case may be, without any allowance to the contractor for profit.

(To be continued.)

Nottingham Housing Gift.

The Nottingham Town Council has accepted the offer of Sir Jesse Boot to erect 35 houses at an estimated cost of £25,000 for the tenants dispossessed by the demolition of their houses for the new boulevard project at Highfields.

Town Planning.

The Town-Planning Department of the Ministry of Health has issued a list of local authorities engaged in the preparation of town-planning schemes, which shows (1) that at November 30 last, authorities had passed resolutions in 376 cases deciding to prepare schemes or had received the Minister's approval or authority, where required, but that no Preliminary Statement or Scheme has yet been approved by the Minister; (2) that 58 Preliminary Statements of proposals for development have been approved by the Minister, and (3) that 17 authorities' schemes have been finally approved by the Minister and become operative. These are as follows: Luton T.C., Wallasey T.C. (No. 2), Chesterfield T.C. (No. 1 and No. 1 amending), Rochdale T.C. (No. 1), Ruislip-Northwood U.D.C. (No. 1), Croydon T.C. (South), Birmingham T.C. (Swinton, etc., East, North Yardley, East amending, and South), North Bromsford U.D.C., Hunslet R.D.C. (Templenewsam No. 1), Leeds T.C. (Buckingham House), Otley U.D.C.

PICTURE EXHIBITIONS.

PASTEL SOCIETY.

The admirably displayed collection of subjects in the Institute Galleries by the Pastel Society seems to reach a higher level of quality this year. Several groups of works by various artists are hung together with good effect, though they do not always include all of the artist's contributions. Excellent groups of pictures are shown by Wm. Redwood, Terrick Williams, H. D. Richter, Montague Smith, and Leonard Squirrell. The fine drawing of the Cathedral Mountain, Canadian Rockies (320), is one of the best things Leonard Richmond has ever done; the perspective, light, and colour give it a notable quality. This artist's lecturing tour in Canada has evidently given him still further opportunities to grasp the pictorial values of our wonderful world. One could wish that there were less picture-making, in the old sense, in these exhibitions and more of that delightful freedom and freshness of effect which pastel so readily offers. There are many pictures which, in their completeness and finish, must satisfy the general desire, such as Henry Tuke's charming " Evening Departure " (206). Cohen's wonderfully clever portrait of Mrs. Miller (255) and Richter's " Convent Garden " (293), but the free rendering of genuine pastel, as in Miss Aimée Muspratt's " Child and Puppy " (124), is not so much in evidence. Amongst the group of clever pencil drawings by Miss Helen Bedford will be found a very telling portrait of C. F. A. Voysey (69).

A CRAFTS EXHIBITION.

An attractive exhibition, and one of a kind we might well see more of, is the collection of flower pictures, and various dainty specimens of craftsmanship at the Greves Gallery in Bond-street. The pottery, metal-work, and needle-work include some very pleasing kinds of design and craft, and, generally speaking, at moderate charges. The flower paintings by Mrs. Christie are exceptionally good, and Mr. Henry Bulman has also a good collection. We feel, however, that in most of these things there is lacking a true decorative feeling, such as even the smallest and simplest work of art may convey. In the sculpture, by Messrs. Whitney Smith, Harold Stabler and John Angel, this is not wanting, but most of the other exhibits of figures clearly lack it. The silver-ware, by Omar Ramsden, is delightful. The Rowley inlay panels are interesting.

THE "BUILDER" COMPETITION.

CONSTRUCTIONAL PROBLEM COMPETITION.

Commencing with this number, a constructional problem will be set each week for the younger members engaged in the pursuit of architecture and building. The competition will be limited to students of any recognised school of architecture or building, assistants who have not passed the Final of the R.I.B.A., and builders and others engaged in the building industry not over 25 years of age. Practising architects, builders and others, and senior assistants will not be eligible. Solutions employing new materials and construction will be encouraged, and it is hoped that this new feature will prove popular and helpful to our younger readers.

Answers should be clear and concise and illustrated with detailed sketches or drawings where necessary. These solutions will be carefully examined and that judged the best for the week will receive a prize of £1. Selected replies, together with a report, will be published in subsequent issues, and in the absence of a suitable solution a model answer will be published. Any solution published, apart from that of the winner, will be paid for at our usual rates.

This week's problem is as follows :—

A warehouse abutting upon a river is to be rebuilt. The ground floor of the new building will be 4 ft. above the adjoining road level. There will be two basement floors, each being 10 ft. from floor to floor. The lower basement floor will be 16 ft. below the road level. The H.W.M. of the river is 4 ft., and the L.W.M. is 14 ft. below the road level, and a bank of mud is left exposed at low water.

The base of the wall, if built in brick, would, under the London Building Act, be 30½ in. thick, equal to 3½ bricks.

Describe and illustrate how you would construct the wall, the materials to be used, and the methods you would adopt to make the building watertight.

Plans, sections, etc., should be drawn to ¼-in. scale, and details to 1½-in. scale.

Answers, addressed to the Editor, and marked " Problem I," to be sent in not later than first post, January 18.

The Editor's decision to be final.

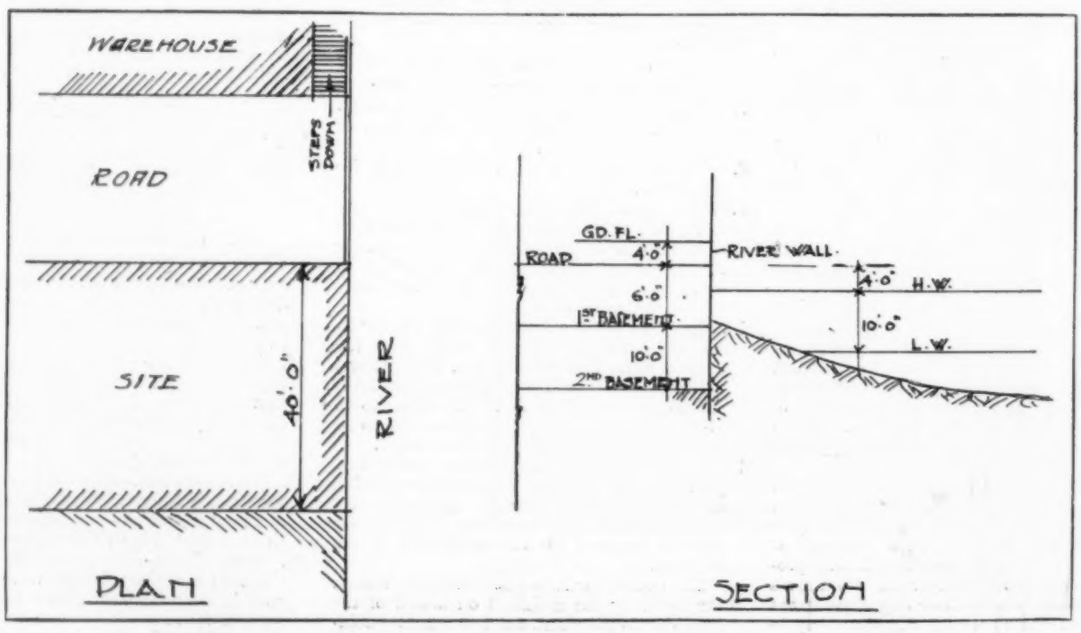


Diagram Illustrating " The Builder " (Constructional Problem) Competition.

GENERAL NEWS

Professional Announcements.

Messrs. Tyler & Tyler, architects, surveyors and valuers, have recommenced practice at 51, The Mall, Ealing, W. 'Phone: Ealing 687. Catalogues are requested.

The Minister of Health has appointed Messrs. G. H. Thiselton-Dyer, M.A., M.Inst.C.E., F. G. Hill, A.M.Inst.C.E., and Lieut.-Colonel L. F. Wells, D.S.O., M.Inst.C.E., to be Engineering Inspectors on the staff of the Ministry.

Messrs. J. S. Gibson and W. S. A. Gordon have taken into partnership Mr. James M. Wilson, A.R.I.B.A., formerly Director of Public Works, Baghdad, and the new firm will carry on practice at 5, Old Bond-street, W.1.

St. Stephen's Hall.

It is expected that the redecoration of St. Stephen's Hall, Westminster Abbey, which was outlined by Captain Hacking, M.P., on behalf of the First Commissioner of Works, in the House of Commons recently, will be completed by the end of next year. The finished scheme will give the visitor an epitome of the history of this country.

Greasborough New Town Hall.

A town hall with accommodation for 315 people has been opened at Greasborough erected to the designs of Mr. James Totty, of Rotherham. The general contractors were Messrs. Chadwick & Co., of Rotherham, and the cost of erection £7,000.

Blackheath Road Scheme.

Local opposition to the proposal of the Ministry of Transport to construct an arterial road across Blackheath Common has taken the form of preparing an extensively signed petition to the Greenwich Borough Council. The petitioners submit a number of alternative proposals which aim at securing that motor traffic across the common shall be kept at a minimum and confined to the existing road, which, they claim, is already sufficiently wide for the purpose without further interference with the amenities of the Heath.

Sidmouth Sea Wall.

The town of Sidmouth, in South Devon, is appealing for £100,000 to pay for the new sea wall built as protection against the encroaching sea.

Hagley Hall Fire.

Hagley Hall, Worcestershire, built in 1760, by Baron Lyttelton, poet and historian, and now the seat of Viscount Cobham, was destroyed by fire on December 24. Many works of art, including sculpture, tapestry and books, were consumed, but the building is to be re-erected.

Liverpool College Buildings.

We are informed that the sending-in date for this Competition has been extended to January 16.

Wyre Forest Scheme.

The Forestry Commission have started a re-afforestation scheme in Wyre Forest, near Bewdley, by which 800 acres of forest will be cleared, and larch and fir planted instead of oaks.

Haddon Hall.

Haddon Hall, celebrated for its association with Dorothy Vernon, is to be closed to the public. The historic home of the Dukes of Rutland has not been in general habitation since 1779, but the present Duke intends to take up his residence there. Extensive alterations are being made for this purpose, including the reopening of the old banqueting hall.

Bridlington Spa Reconstruction.

Bridlington Town Council has accepted the tender of Messrs. Holliday & Barker, of Hull, at £30,766, for the reconstruction of the Spa.

Birch Hall.

The oak panelling and accessories of Birch Hall, Manchester, are being sold; the house is being demolished, and part of the new buildings of the Manchester Grammar School are to be built on the site.

West Barkwith Church.

The church of West Barkwith, near Nottingham, built in the fourteenth century without proper foundations, is rapidly subsiding. The tower is splitting on all four sides and the north-east corner fell recently.

Scottish University Extension.

A hall and residence for men students is to be built for St. Andrew's University, at an estimated cost of £45,000.

Shrewsbury Hospital Extension.

The foundation stone of a new children's wing to the Royal Salop Infirmary was laid recently. Mr. Kirby, of Messrs. Edmund Kirby & Sons, of Liverpool, is the architect to the new building, which is estimated to cost £20,000.

Glasgow Slum Clearance.

Four thousand houses are affected by a slum clearance scheme proposed by the Glasgow Corporation.

Architect's Estate.

Mr. Frederick John Stevenson, of New Dover-road, Canterbury, for over 30 years architect and surveyor to the Howard de Walden Estates in London, who died intestate and a bachelor without parent, left £65,705 gross, with net personalty £65,466.

Gift to Llandudno.

The late Mr. F. E. Chardon, of Rapallo House, Fferm Bach-road, Llandudno, has left his house, grounds, and a large collection of works of art and curios to the Council, together with an endowment, in order that the place may be opened to the public as a museum and art gallery.

Entrance to The Café Royal, Regent Street, W.

Messrs. HENRY TANNER, Architects. SIR REGINALD BLOMFIELD, R.A., Architect for Façade.

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ILLUSTRATIONS

Nursing College, Henrietta-street.

The College of Nursing in Henrietta-street, Cavendish-square, is one of Sir Edwin Cooper's best recent works. It takes a high place amongst our modern street frontages both for its general and detailed effect. Seen from the corner of Old Grosvenor-street the broadly treated stone front with its two lofty flanking chimneys has the merit of a dignified simplicity, whilst the interest of the façade is well sustained throughout. The treatment of all the salient features is very pleasing, and as one approaches the building from the east the accentuation of the roof lines and of the attic eaves projection and main cornice give a note of distinction which is too seldom attained. We hope later to give some illustrations of the interior.

Liverpool & Victoria Friendly Society Building.

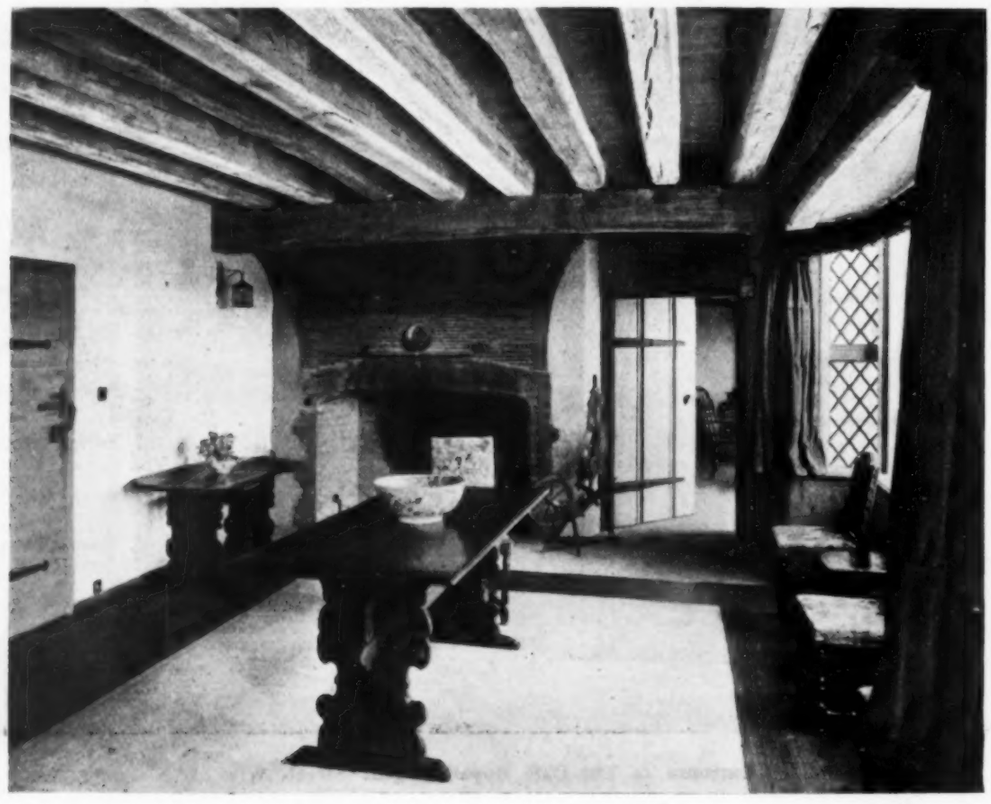
A large section of this fine building has now been completed in Southampton-row and Bloomsbury-square, from the designs of Mr. C. W. Long, F.R.I.B.A., and a further part of the work is now going forward. The pencil drawing which we reproduce on one of our inset plates shows the fine scale and dignified architectural effect of the main facade as it will be when completed. Messrs. James Carmichael, Ltd., are the contractors, and following is a list of the sub-contractors :—Portland stone, Messrs. Bath & Portland Stone Firms, Ltd. ; white glazed bricks, The Stourbridge Brick Co. ; granite, Fenning & Co., Ltd. ; waterproof cement, The Super Cement Co. ; heating and ventilation, F. A. Norris & Dutton, Ltd. ; lifts, Waygood-Otis, Ltd., and Smith, Major & Stevens, Ltd. ; electric lighting, The Engineering Works, Ltd. ; rainwater goods, McDowell Stevens ; flooring, Terrano, Ltd. ; fire hydrants and piping, Merryweather ; metal windows, The Crittall Manufacturing Co., Ltd. ; sanitary goods, Pontifex & Sons Ltd. ; strong room (doors), John Tann, Ltd. ; hydraulic hoist, The Hydraulic Engineering Co. ; carving (external), C. H. Mabey ; vacuum cleaning plant, Sturtevant Engineering Co. ; iron fire-escape staircase, F. A. Norris & Co. ; general ironmongery, Stedall & Co. ; marble, J. Whitehead & Sons, Ltd. ; lead work (ornamental), J. L. Emms ; plastering (fibrous), Gilbert Seale & Son ; glass and copperlite glazing, Chater & Sons ; handrail to staircase, James Gibbons, Ltd. ; terrazzo, Carter & Co., and The Art Pavements & Decorations, Ltd. ; artesian well borings, Isler & Co., Ltd. ; artesian well pumps, Le Grand Sutcliff & Gell, Ltd., and Worthington Simpson, Ltd. ; locks, Hobbs, Hart & Co. ; main boilers, Babcock Wilcox ; door springs, Adamsez ; pavement lights, King & Co. ; lantern lights and roof lights, The Luxfer Prism Co. ; bricks (Flettons), The London Brick Co. & Forders, Ltd.

The foundations of the building are 27 ft. below the road level, and to lay them it was necessary to go even deeper. Having made the excavations, the contractors found progress impossible on account of the inrush of water. A huge tank was constructed of Super Cement to exclude water and provide a base for the buildings. This tank now extends some way under the surrounding thoroughfares. The walls of the tank are only 12 in. thick.

The Army and Navy Stores.

The frieze decoration over the panelling in the main hall of the Army & Navy Stores completes the internal re-arrangements in the old main building in Victoria-street, which after 50 years' service, had naturally become out of date. Sir Aston Webb and Mr. Maurice Webb, the architects, have provided a dignified façade of show windows, and the internal arrangements are notable for their efficiency. Important extensions are now in progress to meet modern demands. The new columniated front has a fine series of windows. At night-time it is illuminated by a unique system of flood lighting projected through pavement lights, which create a very beautiful effect. The new work, extending to the whole of the present Victoria-street front, and along the return end in Artillery-row, consists of an entablature carried on lofty Ionic columns. The doorway at the main entrance is surmounted by a modillioned arch, under which a shield bears the arms of the Society. The entrance hall is reached through a pair of fine bronze doors, and a similar pair at the top of the steps give access to the main hall.

The frieze, which has been designed and executed by Professor Gerald Moira, R.W.S., is emblematic of the all-embracing nature of the supplies and services of the Society. Opposite the entrance, upon the south wall, the artist symbolises the evolution of dress from the thirteenth and fourteenth centuries to the present day, and also depicts house decoration and furnishing, introducing a handsome background. On the east, or left-hand, wall the subject is travel and sport. Here, again, we see the old and the new—an aeroplane, a steam-



Interior of a House in Warwickshire.

MR. OLIVER HILL, F.R.I.B.A., Architect.

ship, a train, a motor-car, and, in the centre, a caravan; and many types of landscape. On the west, or right-hand, wall, the fruits of the earth have their place—maidens treading out the grapes in a sunlit vineyard, Eastern plantations, and English farm scenes. The scheme is completed by a glimpse of the Society's fine buildings at Calcutta and Bombay, and specimens of Indian architecture—the Taj Mahal at Agra and the Queen Victoria Memorial at Calcutta. Mr. Moira has fully availed himself of a fine opportunity for decorative effect and has produced a frieze masterly in composition and colouring.

Threadneedle-street Post Office.

This new building is on the site of the old Post Office, which, owing to its proximity to the Stock Exchange and the Bank, has always been one of the most important in the City. Throughout the building operations, arrangements had to be maintained for carrying on postal and telegraphic business. There are two floors below the street level and nine other floors over most of the site, to a height of 105 ft. above the street. The basement floors are adapted for dealing with the many registered and other letters posted there; public telephone boxes occupy a part; and the engineering plant for lighting and lifts, pneumatic tubes, &c., occupy the remainder. On the ground floor the public office occupies most of the space. The floors and columns are of Italian marble, and the mahogany counters and other fittings have been designed specially for the building. The other floors are given up to the telegraphic and other business, together with welfare accommodation for the staff. Two lifts, hot water heating, electric lighting, and a special system of mechanical ventilation have been provided.

The front is faced with Portland stone, the doorway being of grey granite. Over the centre window a head of Mercury has been carved by Messrs. Broadbent & Son.

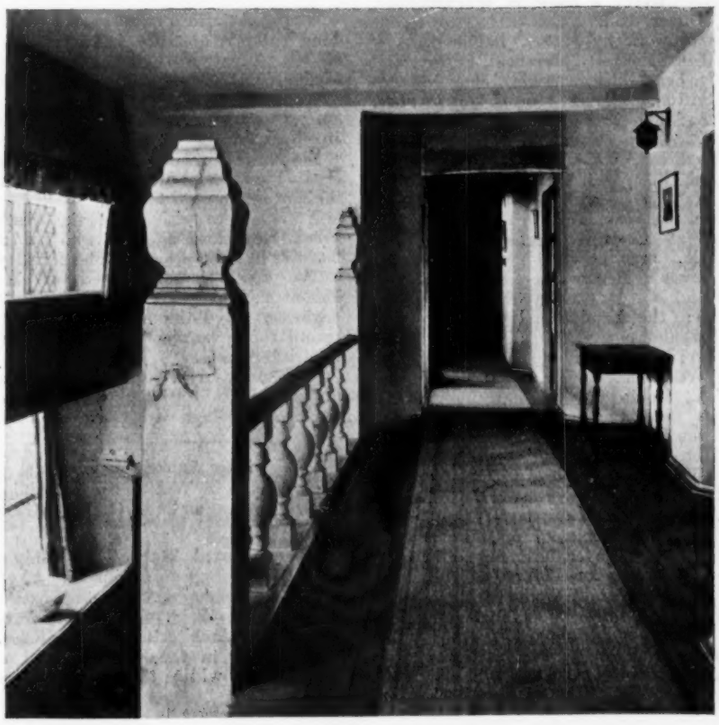
The contractors for the building work were Messrs. A. Vigor, Ltd., the bronze work being by Messrs. Crittall Manufacturing Co.; the modelling on the gates by Mr. G. Alexander; the mahogany fittings by Messrs. J. Greenwood, Ltd., and the Educational Supply Association. The architect was Mr. E. Cropper, O.B.E.; and the clerk of works, Mr. C. R. Priestley.

New Central Offices for the Bleachers' Association, Ltd.

The new building, now practically completed in Manchester for the Bleachers' Association, Ltd., is on the site of the old Blackfriars Hotel in the Parsonage. The site is conveniently situated, being within five minutes of Salford, Exchange, and Victoria Stations, and within sight of the Manchester Royal Exchange. The offices will have good natural lighting, and will have the advantage of being almost free from the noise of heavy street traffic. The building has a sub-basement, basement, ground floor, and seven other floors, making ten in all. The Association themselves will occupy the four upper floors, and the remainder of the building, namely, the ground floor, the first, second, and third floors, the basement and sub-basement, will be let off in office suites. The building has Portland stone elevations with a base of granite to the three frontages, and is of fireproof construction throughout. The foundations, all on solid rock, at places 15 ft. below water level of river, are of steel grillages and concrete. The main doorway in the Parsonage gives access to the hall, from which a staircase and two express passenger lifts connect to the upper and lower floors. There is also a secondary staircase and large staff and service lift. Heating, &c., is by low-pressure hot water, with radiators and fresh air inlets in connection therewith. Electric light is provided throughout. There is also a vacuum cleaning plant—five points on each floor.

The general contractors are Messrs. J. Gerrard & Sons, Ltd., of Swinton, Manchester, and the following are sub-contractors: Steelwork, Messrs. Banister, Walton & Co., Ltd., Manchester; stonework—Portland, F. M. & H. Nuttall, Ltd., Whitefield, Manchester, and granite—Jno. Freeman, Sons & Co., Ltd., Penryn, Cornwall; ornamental stone carving, Earp, Hobbs & Miller, Manchester; artificial stone, Christie Patent Stone Co., Stretford, Manchester; ornamental ironwork, Geo. Wragge, Ltd., Salford, and Bromsgrove Guild, Ltd. (E. W. Pickford), Manchester; marble, J. & H. Patteson, Manchester, and Marbello, Ltd. (J. Lutley), Manchester; fibrous plasterwork, Frank Drury (Board Room and Committee Room), Goodalls (Chairman's Room), and J. & A. Hart (general work), Hulme, Manchester; bricks, fireproof floors, wood floors, plumbers' work, and lift enclosure, J. Gerrard & Sons, Ltd., Swinton, Manchester; staircases (patent stone), Christie Patent Stone Co.; metal casements, Geo. Wragge, Ltd.; tiling, Conway & Co., Manchester, and C. W. Williams & Co., Ltd., Manchester; heating and ventilating, Elliott Ellis & Co., Manchester; panelling and joinery, Frank Drury, Manchester, Goodall, Lamb & Heighway, Ltd., Manchester, and J. Gerrard & Sons, Ltd., Manchester; lifts, Waygood-Otis, Ltd., Manchester; ironmongery, Marley Bros., Ltd., Birmingham, J. Lutley, Manchester, and N. F. Ramsay & Co., Ltd., Newcastle-on-Tyne; electric light, John Lightfoot, Manchester; asphalt, Limmer & Trinidad Lake Asphalte Co., Manchester; painting, Chas. Bell, Manchester; vacuum cleaning, Sturtevant Engineering Co., Ltd., London and Manchester; laboratory fittings, Baird & Tatlock, Ltd., London; sanitary fittings, Shanks & Co., Ltd., Manchester; lightning conductor, John Faulkner, Manchester.

Mr. H. S. Fairhurst, A.R.I.B.A., is the architect.



Staircase Landing of a House in Warwickshire
MR. OLIVER HILL, F.R.I.B.A., Architect.

The Newcastle Supply Co.'s New Premises.

Work has begun on the site of the old Turkish Baths, at the corner of Pilgrim-street and New Market-street, Newcastle-upon-Tyne, in connection with the new building, called Carliol House, for the Newcastle-upon-Tyne Electric Supply Company, Ltd., and its associated companies. The building, which is to be ready for occupation in the autumn of 1927, is destined to be the northern headquarters of the electrical industry, and has been designed by Mr. L. J. Couves, of Newcastle-upon-Tyne, in conjunction with Sir John Burnet & Partners. The site chosen—a commanding one in the business centre of the city—has a ground area of 28,000 sq. ft. and a frontage in New Market-street of 432 ft. The building over about one half of the site will consist of eight floors, and, on the remainder, nine floors including the basements will be erected. There will be two entrances; one in New Market-street, and the other at the corner of Pilgrim-street and New Market-street. The latter will open into a rotunda or circular hall, which will form part of the showrooms. These showrooms, which will be a special feature, will provide ample space for consumers to see electrical appliances in actual use. A basement on the eastern half of the premises will provide for the central heating and vacuum cleaning plants. Central heating will be provided by means of a low-pressure hot water system, which is to be heated electrically. The vacuum cleaning plant will be wholly electrical. The New Market-street entrance will give access, through a hall, to a well-lighted staircase with four high-speed lifts. Each floor will be divided into suites of offices, which have been specially planned to make for efficient working. The contractors are Messrs. Stephen Easten, Ltd., Milburn House, Newcastle-upon-Tyne.

15 and 16, Keats Grove, Hampstead.

The semi-detached houses illustrated on page 76 are the first of two pairs to be erected for Mr. E. L. Greaves. The site, a vacant one on possession, is immediately opposite Keats' Cottage, one time occupied by the poet. The building line, being determined by the houses adjoining, allowed of approximately an equal garden front and back. It is proposed to erect garages at the rear of No. 14—an approach road having been provided. The 3 in. multi-coloured facing bricks were supplied by Messrs. The Dorking Brick Co., the plain roofing tiles by Messrs. Pascall & Sons. The general contractors were Messrs. F. Troy & Co., Ltd. The bill of quantities was prepared by Mr. Lawrence Hagen. Mr. Albert L. Farman was the architect.

Our illustrations also include the following: A perspective view of the great new building designed by Mr. Cass Gilbert for erection on the site of the famous Madison-square Garden, New York—one of the earliest works of McKim, Mead & White, now demolished; a Study for the Centre Pavilion of Messrs. John Barker's new premises at Kensington, designed by Sir Reginald Blomfield, R.A.; the new Sports

Pavilion for the P.L.A., at Tilbury (Sir Edwin Cooper, architect); a house in Warwickshire, by Mr. Oliver Hill, F.R.I.B.A.; two recent examples of work by Messrs. Baillie Scott & Beresford—a house at Limpsfield, Surrey, and Bembridge School, Isle of Wight; some cottages at Long Sutton, designed by Mr. E. Guy Dawber, P.R.I.B.A.; two recent examples of domestic work by Mr. Philip Tilden—a house at Northwood, Middlesex, and a house for Viscountess Ridley, at Box Hill, Surrey; two Sketch Studies of "Fishers' Hill"—an early work by Sir Edwin Lutyens, R.A.; the new Chenil Galleries, at Chelsea (Messrs. Kennedy & Nightingale, architects); Messrs. Liberty's New Premises in Regent-street (the late Edwin T. Hall and Mr. E. Stanley Hall, F.R.I.B.A., architects); the London & South American Bank, Tokenhouse-yard, E.C. (Messrs. Josephs, architects); the Mary Sumner House, Tufton-street, Westminster (Mr. Claude Ferrier, F.R.I.B.A., architect); the new building for the Swiss Bank Corporation, Gresham-street, E.C. (Messrs. Meakin, Archer & Co., architects); a new factory in reinforced concrete (Messrs. Wallis, Gilbert & Partners, architects); the new entrance to the Café Royal, Regent-street (Messrs. Henry Tanner, architects, Sir Reginald Blomfield, R.A., architect for the façade); the new Headquarters for the Society of Friends, Euston-road (Mr. Hubert Lidbetter, A.R.I.B.A., architect); the War Memorial Chapel, Royal Military College, Sandhurst (Mr. Arthur C. Martin, F.R.I.B.A., architect); the new warehouse for Messrs. Wm. P. Hartley, at Aintree (Mr. Frederick W. Nicholson, A.R.I.B.A., architect).

OBITUARY

We regret to learn of the death of Mr. William John Falkner, quantity surveyor, and brother of Mr. Alfred B. Falkner, President of the London Master Builders' Association.

We regret to record the death, at the age of 85, of Mr. John Robertson, architect, of Inverness.

We have to record the death of Alderman H. B. Plummer, A.R.I.B.A., of Tynemouth, at the age of 70.

We announce with regret the death of Mr. Fredk. Raynsford, aged 59, who has carried on business in Milford as a builder for 25 years.

The death is announced of Mr. John Macintosh Makay Munro, F.R.S.E., consulting engineer, of Edinburgh, who has to his record the invention of many of our present electrical devices.

We regret to record the death, at the age of 60, of Mr. T. W. A. Garrood, architect, who died at his office in Kingly-street, W., recently.

More Ancient Monuments.

The Office of Works has scheduled Astley Hall, Chorley, and the Guilford Guildhall as ancient monuments.

Bernard Webb Studentship.

Mr. Hope Bagenal, Librarian of the A.A., and a lecturer on acoustics, has been awarded the Bernard Webb Studentship for Foreign Research in Architecture. He will begin work very shortly in the British School of Art in Rome, which will be the base of his operations.

The Medical Arts Building, Dallas, Texas.
(Of Reinforced Concrete, with the frame exposed).

COMPETITION NEWS

Competitions Open.

	Particulars published in "Builder."	Sending in date.
Branch Library, Gabalfa, Cardiff. Limited to qualified architects in Cardiff. Premiums £75, £50, and £30. Mr. Sidney K. Greenslade, F.R.I.B.A., assessor. Apply, with deposit of £2 2s., to Librarian, Central Library, Cardiff	Nov. 27	Jan. 16
Art Gallery and Museum, Birkenhead. Limited to competitors practising within 20 miles of Birkenhead since January 1, 1923. Premiums: £250, £175, £100. Sir Robert Lorimer, A.R.A., assessor. £2 2s. deposit. Apply Curator, Central Public Library, Birkenhead	Oct. 16	Jan. 30
Public Memorial, Blackpool. Mr. E. Bertram Kirby, F.R.I.B.A. assessor. Apply to Mr. D. L. Harbottle, Town Clerk, Town Hall, Blackpool. Deposit £1 1s.	Dec. 11	Feb. 13
Australian War Memorial, Canberra. Open to architects of Australian birth. Apply High Commissioner, Australia House, Strand, London	Aug. 14	Mar. 31
Public Hall, Topsham. Premiums £50, £40, and £30 respectively. Mr. Walter Cave, F.R.I.B.A., assessor. Last day for questions, Jan. 1, 1926. Designs to be sent in by April 1, 1926. Conditions from the Clerk to the Parish Council, Topsham, on deposit of £1 1s	Jan. 1	April 1
Australian National War Memorial, Villers Bretonneux, France. Limited to Australians under special conditions. Apply Military Headquarters in capital city of each State, or High Commissioner's Office, Australia House, Strand, London. £2 2s. deposit required	Dec. 25	April 30
Papers on subjects connected with Heating and Ventilating. Two prizes of £10 10s. and one of £5 5s. offered by the Institution of Heating and Ventilating Engineers	Dec. 25	May 1
Royal Society of Arts Competitions for Industrial Designs. Apply Secretary, Royal Society of Arts	Jan. 1	June
Royal National Eisteddfod of Wales, Swansea, Competitions: (1) National Parliament House of Wales (Prize, £100); (2) Street Facade to a Large Stores (Prize, £25); (3) Set of Measured Drawings of Architecture (Prize, £25). Apply for programme to publishers, Messrs. Morgan & Higgs, Heathfield-street, Swansea (1s. 2d. post paid). Mr. Arthur Keen, F.R.I.B.A., Assessor	Nov. 6	July 12
Incorporated Architects in Scotland: (1) Rowand Anderson Medal and £100: City Art Gallery and Museum; (2) Rutland Prize (£50) for Study of Materials and Construction; (3) Prize (£10 to £15) for 3rd year Students in Scotland; (4) Maintenance Scholarship, £50 per annum for 3 years. Apply Secretary of the Incorporation, 15, Rutland-square, Edinburgh	Nov. 6	—
Plan for construction of Conference Hall, for League of Nations, Geneva. International Competition, Sir John Burnet being British representative on Jury of Assessors. 100,000 Swiss francs to be divided among architects submitting best plans. Programmes with R.I.B.A., 9, Conduit-street, where intending competitors should apply. Single copies from Secretary-General, League of Nations, Geneva, on payment of 20 Swiss francs.	Jan. 2	—
Secondary School for Girls, Worcester. Premiums 100 guineas and 50 guineas. Mr. Herbert T. Buckland, assessor	Dec. 11	—
Infectious diseases hospital, Blaydon, for 72 beds. (Date of application for particulars now passed)	Dec. 18	—
*Proposed new church, Monmouthshire	—	—
*Proposed new school, Gosport	—	—
*Proposed new hospital, Guisborough	—	—

* Competitions when "warned" or vetoed by the R.I.B.A. are starred.

THE FURNITURE OF HAMPTON COURT AND OTHER ROYAL PALACES

READING a paper on this subject before a recent meeting of the Society of Arts, Mr. Ingleson C. Goodison said the existing buildings of Hampton Court Palace appertained to two well-defined periods, the Tudor of Henry the Eighth and the Stuart, or Orange Stuart, of William the Third and Queen Mary. Records were fortunately extant affording particulars of the appointments and furnishing of both epochs. If Wolsey, entertaining just notions of the dignity and importance of his offices in Church and State, was a magnificent patron of the arts, he was followed in possession by a King who continued, with equal address, to accumulate within the walls of his palaces decorative furniture and other artistic treasures to the very last days of his life.

Among the Harley manuscripts in the British Museum elaborate and detailed inventories of Wolsey's possessions were found, and a remarkable series of later inventories, taken by commission in 1547, of the appointments of Henry VIII's many palaces, and other buildings, including those of Westminster, Windsor, Greenwich, Richmond, Hampton Court, Oatlands, Nonsuch, The Tower, Woodstock, The More, Newhall, Nottingham Castle, St. John's, nigh London, and Beddington.

The appointments of late Stuart and Georgian days, also, had left their impress upon Hampton Court and other Royal palaces. "The period of Charles I," it had been observed, "is significant. It embraces the accumulation and begins the dispersal of the most notable collection of artistic treasures ever possessed by a single individual. With a splendid enthusiasm and genuine discrimination this monarch provided a rich inheritance for the English people, little dreaming that at his death it would be scattered abroad to raise funds for his enemies. . . According to an inventory of the objects offered for sale, we judge that the furniture of Somerset House in Charles's day comprised many articles which have since acquired an almost priceless value. The arras hangings, tapestries, and pictures alone formed one of the most remarkable private collections ever brought together. In addition there were many magnificent carpets and cloths of state, canopies of crimson velvet and cloth of silver, clocks and mirrors of great beauty. A single bed of French satin finely embroidered was appraised at £1,000 in the currency of the day."*

The palaces and other Royal residences from which Charles I's marvellous collection was withdrawn for the purposes of sale were:—The Tower, Somerset House, Whitehall, Greenwich, Wimbledon, Oatlands, Windsor, Hampton Court, Richmond, Sion House, and St. James's, and many of the items appearing in this inventory related to superb furniture amassed by Wolsey and Henry VIII, as well as to treasures purchased with such fine judgment and discrimination by Charles I.

The establishment of the Commonwealth was accompanied by a reaction against any form of ostentation in the setting of domestic life. It was probable that little, if any, new furniture of importance was purchased for the residences of the Protector, though the fact that Cromwell, when in supreme power, and accorded the outward accessories of sovereignty, retained a number of suites of hangings and certain objects of Charles's furniture, and exhibited, moreover, some solicitude for the Mortlake tapestry works had been advanced to prove that Cromwell was not totally averse from love of the arts.

With the Restoration of the Monarchy in 1660 there ensued the inevitable reaction in favour of greater luxury and comfort and new styles in architecture, decoration, and furniture, due perhaps to the King's sojourn on the Continent and to the courtiers who had shared his exile.

Immediately after the accession of William and Mary considerable additions were made to the Palace of Hampton Court. That palace was particularly rich in splendid decorative mirrors, those fixed to the wainscotting being supplied by Gerrit Jensen. These, in their day, were decorative appointments of great price, surprising sums being lavished upon mirror-plates, elaborately wrought, shaped, bevelled, scolloped, "brilliant cut," intagliated and engraved. Many of the borders and slips were of glass of a deep sapphire blue, attached with cut glass rosettes or faceted "jewels" of sparkling white. In many rooms also there were splendid chandeliers of silver, gesso, crystal, and other materials, representative of numerous corresponding accessories for artificial lighting which were freely ordered for the royal palaces.

* "Somerset House," Needham and Webster.

WATERLOO BRIDGE

Professor Beresford Pite writes to the *Times* as follows:—

"Though prompt action by the Government is necessary to restrain the destruction of the bridge by the L.C.C., there is otherwise now no need for hurried measures. The Council engineers have conclusively demonstrated the present stability of the piers and arches by rolling upon them the immense iron girder of the temporary structure, weighing some 600 tons, and, by slipping it sideways on to its new supports, have put the old piers to an unusual and excruciating test, through which they have passed unhurt. The temporary bridge will last for a generation; the longer it is in use the less will be the annual waste of its cost.

"The lovers of Waterloo are not obscurantist as to the need of more bridges. The subject is as over-ripe as the growth of London, and as a whole exceeds the scope of the authority of the L.C.C. There is, therefore, a *prima facie* ground for some new Government action—if by setting up a Royal Commission on the bridges of London, the reference must not be narrow. Road and railway bridges and tubes, now under different controls, the Bridge House Estates resources and powers—all must come under review in considering the great and urgent subject of cross-river communication. *Inter alia*, the condition and future usefulness of Waterloo and its relation to the Strand will be involved, and the destructive action of the L.C.C. will be suspended until light is given upon a problem now becoming complicated enough to excuse 'a blunder,' which, however, must be repented and retraced without further damage."

Professor Lethaby writes to the same newspaper as follows:—

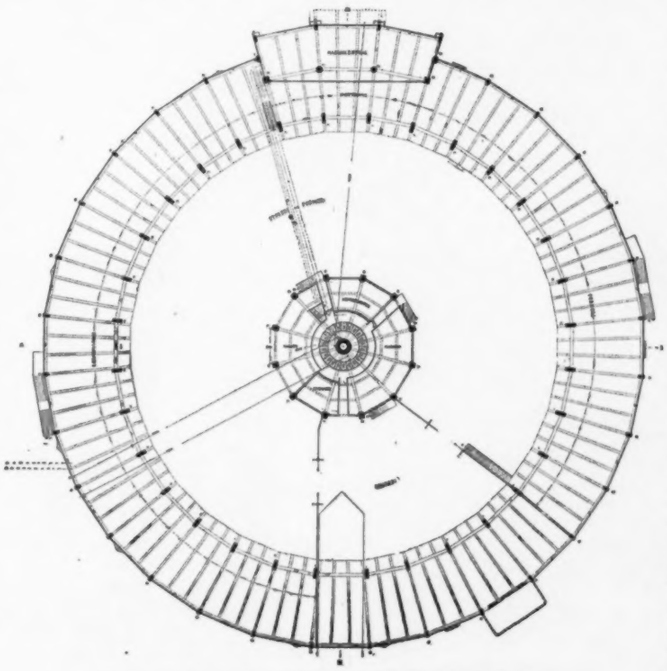
"On December 29 Judge Parry quoted what Ruskin said of Waterloo Bridge in 'The Elements of Drawing':—

"'All endeavours to do the thing in a grand engineer's manner, with a level roadway and equal arches, are barbarous; not only because all monotonous forms are ugly in themselves, but because the mind perceives at once that there has been cost uselessly thrown away for the sake of formality.'

"Does the learned Judge suggest that any new Thames bridge should be a structure of unequal arches rising towards the centre? Ruskin, writing three-quarters of a century ago, was concerned to bring out the romantic beauties of more primitive art in comparison with the great works of the Renaissance. In doing this he made comparisons between mediæval Cathedrals and great modern buildings such as St. Peter's and St. Paul's, the Palace of Whitehall, and Waterloo Bridge, but this did not mean that he would throw down these great monuments. It is an ill chance that an author whose teaching led up to the formation of the Society for the Protection of Ancient Buildings should be quoted as if he would support the destruction of our national works of art."

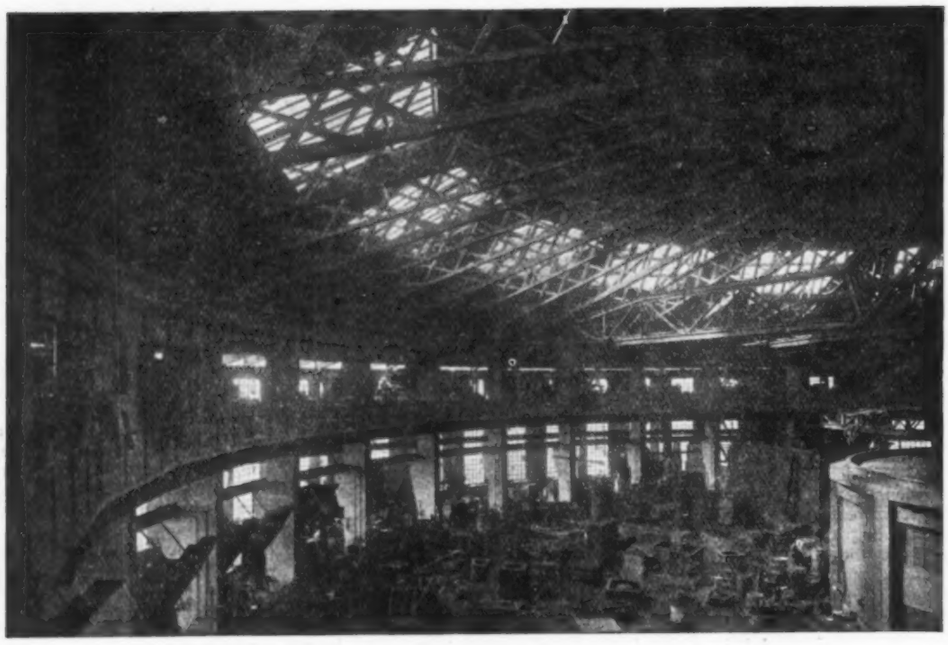
CIRCULAR FOUNDRY BUILDING, COPENHAGEN

The municipality of Copenhagen every year distributes a few premiums to new buildings specially deserving of notice on account of their beauty and other good qualities. Of the four premiums awarded this year one is for a circular foundry hall built by the large engineering and shipbuilding firm of Burmeister & Wain to the design of the architect, Mr. Niels Rosenkjar. It is located on a site filled up in the Copenhagen South Harbour and has attracted considerable attention on account of its circular shape, which is rather out of the common, but which was deemed the most expedient under the circumstances, and a canal from the harbour has been constructed direct into the hall in order to facilitate transport. The roof construction and the rotary cranes rest on the massive central pillar, and the diameter of the free hall is 67 metres, with a surrounding assimilar space of 10 metres breadth. The height to the top of the roof is 27 metres. Both the ferro-concrete work and the roof construction have been carried out by Copenhagen firms, of which the latter specialises in roof construction of wood.

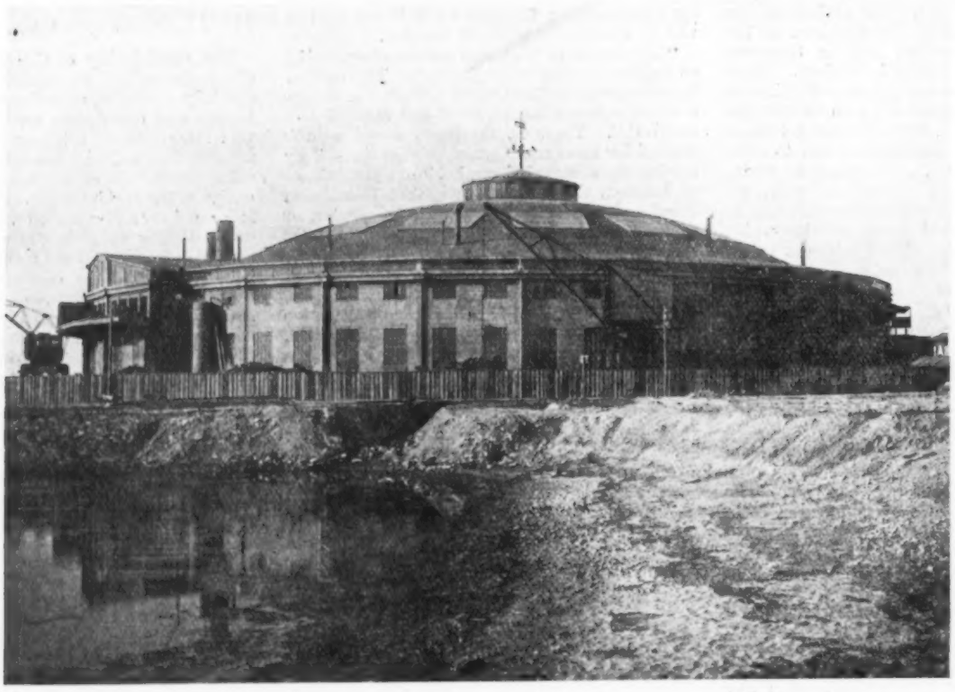


Plan of Circular Foundry Hall, Copenhagen.
MR. NIELS ROSENKJAR, Architect.

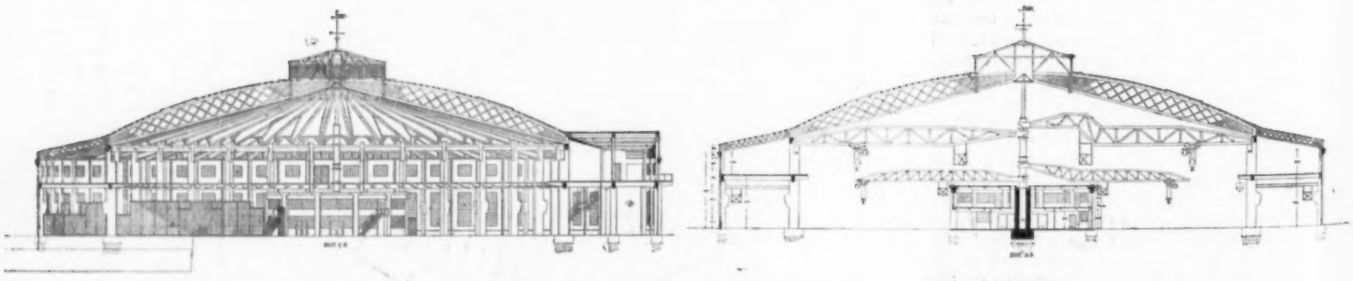
The same firm (Burmeister & Wain), to designs by the same architect, has also erected a new building in connection with their Diesel motor industry. This building has an interior crane height of 18.5 metres. The ferro-concrete work has been carried out by the same Copenhagen firm as in the former case, whereas the cranes and roof construction are the work of a German firm.



VIEW OF INTERIOR.



GENERAL VIEW.



Circular Foundry Hall, openhagen.

MR. NIELS ROSENKJAR, Architect.

THAMES VALLEY REGIONALP-LANNING SCHEME*

THIS scheme covers an extensive area south of the Thames, reaching from Barnes to West Molesey, but excluding the Borough of Kingston. North of the river it embraces Chiswick, Twickenham, Teddington, and Hampton Court. Kingston's refusal to co-operate, while it would, if persisted in, cause difficulties in carrying out the plan, has not been allowed to affect the general lines, which cover the Kingston area, so that the obvious absurdity of a complete separation between the North-east and South-east sections of the scheme is avoided. In like manner the omission of Hampton leaves the plan rather in the air on its western edge. The authors point out that "The fact that we have had to prepare this report for an area from which Kingston and Hampton are excluded has been a serious drawback in precluding the preparation of a complete scheme for both sides of the Thames between Chiswick and the boundary of the West Middlesex region at Sunbury. It is hoped that these two districts will still find it possible to co-operate with the Joint Committee for the purpose of developing the scheme to a further extent in the future, and linking it up with the Maldens and Coombe and Wimbledon on the east, and with the West Middlesex area on the north and west. In a sense Hampton's isolation is the most unfortunate, because it practically forms an island in the middle of an area of 28 neighbouring authorities with whom it has failed to collaborate in the common interest of the region."

The scheme is regional in character, the proposals being intended to give guidance to the local authorities, and yet not so detailed in character as to encroach on the work that would more properly belong to local town-planning schemes. The report opens with the zoning proposals in which the classification is under four heads: Industrial, Business, Residential and Recreational. The first-named covers a relatively small portion of total area, and the second is fairly easily definable at the principal centres and along main routes. Excluding the existing large parks and open spaces, the bulk of the area is naturally appropriated to the third, but in view of the great importance of preserving the amenity of the river, and the valleys of its tributary streams, areas have been defined as parks or parkways along the lines of these, namely, the River Crane at Twickenham on the north side and the Beverley Brook, River Ewell and River Mole on the south.

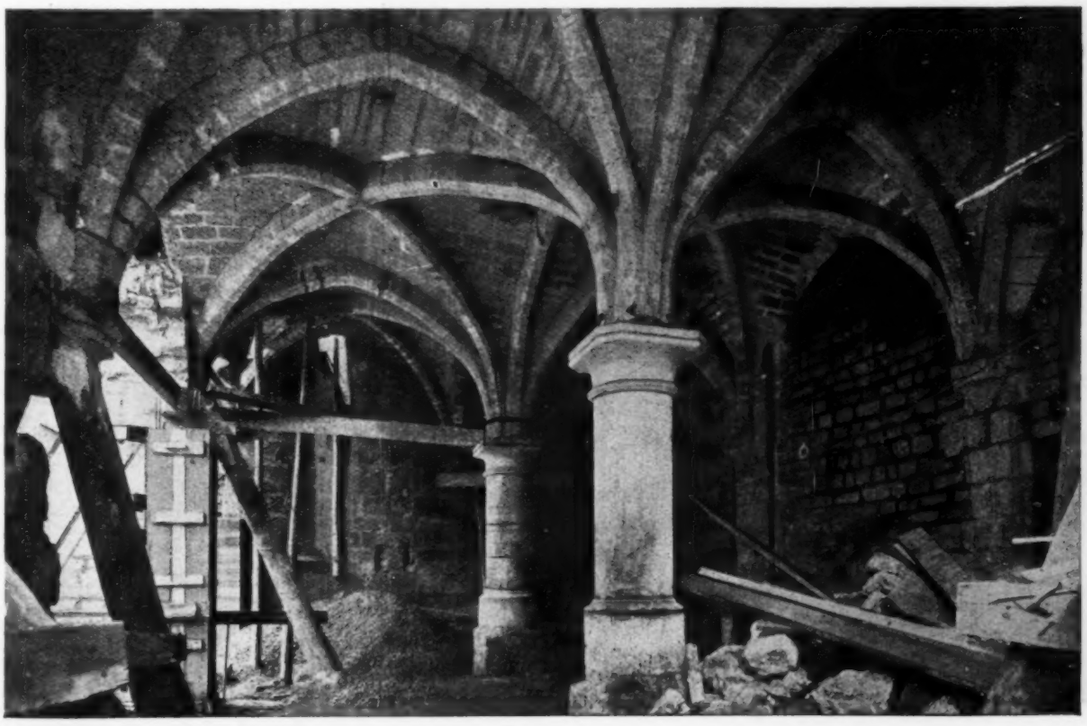
After a few cogent notes on building lines, the report passes on to deal with civic and shopping centres. Several appropriate locations are suggested for the former, but for shops it is clear that in the main the positions are predetermined, and the only demand is for extension to meet probable increases in population. Following this, we come to what is clearly the most important feature in a scheme for such an area as this, including as it does the River Thames, Kew Gardens, Richmond Park, Hampton Court, and other open spaces. The primary need is to weld these together by means of links, imparting a park-like character to the whole district. The river parkway from Richmond to Kingston, where by good fortune there exists no serious obstruction at the present time, is generally recognised as an essential feature. Other reservations have already been mentioned, but in addition to these a very necessary reservation is indicated, namely, the area between Hampton Court Park and the river opposite Surbiton.

That the authors of the report are fully aware of the importance of this aspect will be seen by the following extracts:—"The greatest need in the Thames Valley is to conserve what beauty remains along the banks of the river and to recover some of what has been already lost. Much of the vanished glory of the Thames Valley could not easily have been saved. As London has prospered and spread abroad, she has spoiled natural features and obliterated literary and historic landmarks by new and sometimes ugly tracts of bricks and mortar. But this inevitable process is not to be so much deplored as the disorder and waste that have too often been permitted to disfigure beauty spots, for no better reason than that of affording temporary profit to some individual at the expense of the whole neighbourhood. The vandal is none the less a vandal when he pursues his course in the name of a form of economy that is false, because it destroys more value than it creates, or, in the name of freedom, to use his property as he wills—no matter how much injury he may do to others.

"It is not easy to secure general agreement regarding the measures that should be taken to preserve the beauty of the Thames. The immediate loss to the rates incurred by preventing some utilitarian intrusion, or the cost of the acquisition of land that is needed to conserve some place of historic interest or natural beauty, are, unfortunately, more obvious to the average ratepayer than the benefit which the district derives from such actions on the one hand, or the loss which it suffers from their neglect on the other hand. Partly owing to this fact, and partly to the local authorities' lack of powers and funds to set apart or acquire the necessary land, historic sites have been built over and temporary buildings, with defective sanitary arrangements, have been erected on islands on the river, where they disfigure the landscape, and commercial wharves and hoardings have been allowed where they are out of place from a utilitarian point of view and wholly destructive to the amenities of the river. Nevertheless, it will be found that as the better class of residents are driven away, general deterioration follows, and the rates lose more in the end than they gain in the beginning.

"Late enough, but happily not too late, a valiant effort is being made by Twickenham—the most celebrated name in the literature of the Thames Valley—to prevent the spoiling of the beauty that it still retains. A growing menace comes with the breaking up of great estates, and even the glory of the view from Richmond Hill may not survive if uncontrolled building is permitted to creep over the Petersham and Ham meadows. A constructive policy of conservation and improvement needs to be applied along the whole stretch of the valley that lies between Chiswick and Sunbury. National aid should not be wanting, for the national interest is at stake. The wealthy counties of London, Middlesex and Surrey

*Final Report by Thomas Adams and Longstreth Thompson.



Eleventh-Century Vault discovered under the Rue de Rivoli, Paris.

have here a common duty to collaborate and assist the local authorities. These working separately may achieve much, but the task is beyond their individual and financial resources and statutory powers."

The fifth section of the report deals with the important question of communications. The recognised lines of the Chertsey Arterial Road, with its two bridges at Barnes and Richmond, and the Kingston By-pass, are adopted. Additional bridges at Twickenham, Teddington, Surbiton and Hampton are suggested, forming part of a general system of Regional Arterial routes, which links up with the existing roads and proposed parkways, so that the whole area would be conveniently served.

There are a few points on which the scheme appears open to criticism. No consideration seems to have been given to the problem of by-passing Hammersmith Broadway. Various solutions for this have been offered from time to time, the most satisfactory appearing to be by a bridge to the north of Barn Elms Park connecting Lillie-road with Barnes. Then again there is a tendency towards making the parkway too much of a highway, particularly in the case of those along the river banks. Considering the character of the district the allowance for playing fields looks somewhat inadequate, but possibly these and other matters are regarded as coming more within the scope of the separate town-planning schemes. Taking the area as a whole, the report and plans seem to visualise the requirements very reasonably.

A HOUSING HANDBOOK*

THIS is an attractively written little handbook containing a good deal of useful information, and in the appendix will be found the text of the Housing Act, 1923, known as "The Chamberlain Act," and the Housing (Financial Provisions) Act, 1924, known as "The Wheatley Act." The author, in his Preface, expresses the hope that the present Minister of Health (Mr. Chamberlain) will administer the two Acts side by side; and Mr. Chamberlain as we know, has expressed that intention. Both Acts stand or fall for a time on their merits. The main object of the handbook is stated in the introductory chapter to be to indicate (1) the size and nature of the problem of housing in Great Britain; (2) the legislation which has been passed to enable houses to be built and slums to be cleared; and (3) the various means by which full advantage can be taken of this legislation. The first five chapters contain an interesting review of the position of affairs before the war and the various measures which have been passed up to the present time to deal with it, but in the succeeding chapters a variety of subjects are touched upon, such as "The Supply of Labour and Building Materials," "The Cost of Houses," "Slum Clearance," "The Planning of the House and Its Surroundings," &c.

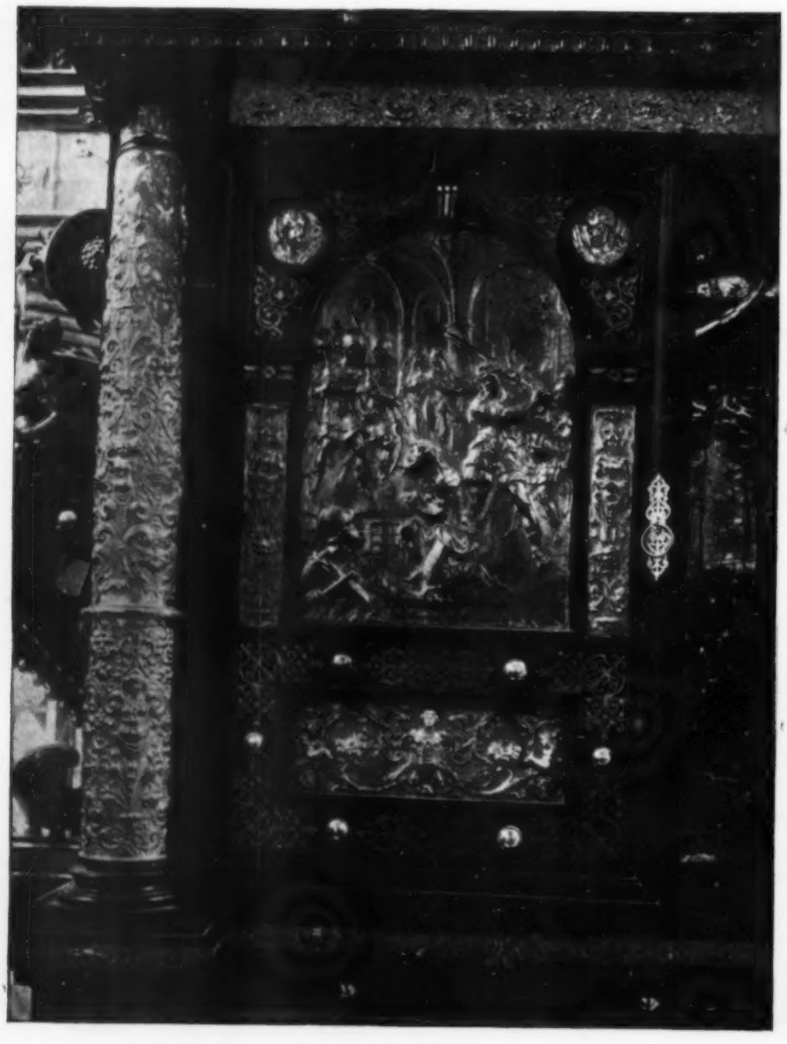
The author states his views clearly and fairly, but we gather he favours municipal enterprise rather than private enterprise. In his historical survey, he attributes the decline in building from 1910 to 1914 not to the land taxes, but to other causes, although he admits that the Finance Act, 1909-10, had an indirect effect. Here, however, we think he fails to grasp the real effect of that legislation, for he says, "The Land Taxes, however, which were imposed under this Budget were only upon undeveloped land reversions and on increments in land values, and these taxes in themselves could not have had any effect on house building." A perusal of the Law Reports of that period will soon convince anyone that that statement as to the Land Taxes cannot be supported. Nearly every transaction in land and houses and mortgages was affected, and it is only necessary to refer to the celebrated "Lumsden Case" to prove that those taxes were a direct tax on builders' profits.

We note that in another place the author speaks of the "tragic results" of the shutting down of the housing programme by the Coalition Government in 1922, as it led to a dispersal of labour; but we hardly think he gives due weight to the consideration that the houses were only being produced at a cost which was not only not economic in the technical sense, but prohibitive; he questions whether the suspension of operations at that time had any influence in the fall of building costs which took place. Mr. Reiss says that the Wheatley Act provides for a continuous building programme of fifteen years, when speaking of building trade labour, but perfectly frankly on another page points out that it is subject to periodical review, and thus the continuity is not assured, but he makes it appear that this rests with the building trade. "The result is that the building trade itself has to secure that at least two-thirds of the programme which it says is practicable shall actually be carried out. Subject to this, the Act guarantees a continuous programme, but if the building trade fails to carry out its side of the bargain then the scheme comes to an end." This seems to us not adequately to express the effect of section 4, subsection (2) of the Act of 1924, which provides that an order may be made, terminating contributions, "whether the deficiency is due to the absence of adequate arrangements for the necessary increase in the supply of labour (including any necessary augmentation of the number of apprentices employed), or for the necessary increase in the supply of materials at reasonable prices, or for the obtaining of funds at reasonable rates of interest to finance the provision of houses or arises from any other cause whatsoever." This can hardly be said to place the matter entirely upon the shoulders of the building trade and to give security to the trade unless it fails to carry out its side of the bargain.

In view of a future edition, may we suggest it would add to the value of the work if more frequent references were made to the sections of the Acts upon which the statements are made?

If the author is an advocate of the local authorities supplying the houses, as we are rather led to believe, he is compelled to admit that private enterprise has led the way so far, and, indeed, from the latest figures published, it is evident that, had it not been for private enterprise, the housing question would have been even more acute than it is at present. It has also to be remembered that the houses hitherto erected under private enterprise have not involved the same charges either on the Exchequer or the rates as will be the cause with houses erected under the Wheatley Act by local authorities. We should wish to see equality maintained between private enterprise and the local authorities, and to judge impartially by the results, and we may add we should wish to see those schemes for rental purchase which have been tried with success in certain localities given further consideration, as a lump sum subsidy is essential to those schemes. From nothing which we have said do we desire to convey the impression that this is not a useful and suggestive handbook containing a great deal of information compressed into a very small space.

*"The New Housing Handbook," by Richard Reiss, Chairman of Executive of Garden Cities and Town Planning Association; author of "The Home I Want." (London: P. S. King & Son, Ltd.) Price 4s. 6d.



Sixteenth-Century Danish Architecture: Frederiksborg.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

Notes from the Minutes of Council, December 14.

ARCHITECTURAL EDUCATION.

On the recommendation of the Board of Architectural Education, the following steps were taken :—

(*a*) *Reconstitution of the Board.*—The following were appointed Members of the Board :—

Fellows.—Mr. A. J. Davis, Mr. W. Curtis Green, A.R.A., Mr. Francis Jones, Mr. Arthur Keen, Mr. S. D. Kitson, F.S.A., Mr. H. V. Lanchester, Mr. T. R. Milburn, Sir Giles Gilbert Scott, R.A., Mr. Walter Tapper, Mr. A. J. Taylor.

Associates.—Professor L. B. Budden, Mr. H. Chalton Bradshaw, Mr. Michael Waterhouse.

Representatives of Schools exempted from the R.I.B.A. Intermediate Examination.—Mr. T. P. Bennett (Northern Polytechnic), Mr. George Drysdale (Birmingham School of Architecture), Mr. G. D. Gordon Hake (Bristol School of Architecture), Mr. W. S. Purchon (The Technical College, Cardiff).

(*b*) *Intermediate Examination.*—A Bronze Medal and a sum of £5 in books will be awarded for the best set of drawings submitted at the annual exhibition of Designs of Students exempted from the R.I.B.A. Intermediate Examination.

(*c*) *Probationership.*—In view of the fact that the Council have decided that except in very special cases a headmaster's certificate shall not be accepted after October 1, 1927, and no one shall be registered as a Probationer unless that person has passed one of the recognised examinations in the required subjects, all Members of the R.I.B.A. will be circularised and informed as to the standard required for the Probationership of the R.I.B.A.

(*d*) *Special Examination.*—The regulations governing admission to the Special Examination are to be amended so as to permit all assistants of 30 whose applications are approved by the Board to take the examination.

(*e*) *Town Planning.*—A paper on "Outline of the History and Practice of Town Planning" is to be included in the R.I.B.A. Final Examination as an alternative to the paper on Advanced Steel Construction (B.2) or Hygiene (C).

(*f*) *R.I.B.A. (Anderson and Webb) Scholarship* (£70) *at Cambridge University School of Architecture.*—The following scholarship award is approved :—First Year Scholarship (£35), Richard Frederick Henriker (Trinity Hall); Second Year Scholarship (£35), Christopher David George Nicolson (Jesus College).

(*g*) *Studentship.*—Sixteen Probationers were elected Students of the R.I.B.A.

UNIVERSITY OF LONDON.

Mr. Arthur Keen and Mr. Maurice Webb have been appointed representatives of the R.I.B.A. on the University of London Architectural Education Committee for the twelve months beginning March 1, 1926.

RIVERSIDE AMENITIES, TWICKENHAM.

On the recommendation of the Town-planning and Housing Committee, letters were addressed to the authorities of Twickenham, Richmond, and the Royal Botanical Gardens and the Thames Valley Joint Town-planning Committee, expressing concern at the threatened disfigurement of the riverside lands adjoining Richmond Bridge on the Middlesex side by the erection of factories.

FOUNDLING HOSPITAL ESTATE.

In response to an invitation from the London Society, Mr. D. Barclay Niven (F.) has been appointed to represent the R.I.B.A. on a Joint Committee which has been established to assist in saving the Foundling Hospital building (or such portions of it as it may seem reasonably possible to preserve), together with Mecklenburgh and Brunswick-squares.

ARCHÆOLOGICAL CONGRESS IN PALESTINE AND SYRIA.

Mr. Frank Mears (Vice-President of the Edinburgh Architectural Association), has been appointed as R.I.B.A. delegate to this Congress, which will be held under the patronage of the British and French High Commissioners from April 2 to April 23, 1926.

L.C.C. DRAINAGE BY-LAWS.

On the recommendation of the Science Standing Committee, the attention of the L.C.C. (who are now engaged in revising the by-laws dealing with drainage, &c., comprised in the Metropolis Management Act, 1855, and the Public Health (London) Act, 1891, &c.), has been directed to the Science Standing Committee's Report of 1914. The L.C.C. have also been invited to receive a memorandum and deputation on this matter.

INSURANCE OF CLERKS OF WORKS.

On the recommendation of the Practice Standing Committee the publication of a notice in the R.I.B.A. *Journal*, advising members to recommend their clients to insure the clerk of works against accidents occurring while engaged on his duties, has been authorised.

SALARIED PUBLIC APPOINTMENTS.

On the recommendation of the Practice Standing Committee a notice has been authorised for publication in the *Journal*, advising members not to apply for salaried public appointments unless the salary offered is stated in the announcement inviting applications. The Association of Architects', Surveyors' and Technical Assistants have been invited to act on similar lines.

RE-INSTATEMENT.

The following members were re-instated; As Associates—G. A. Gale and F. E. Collington; as Licentiates—William Davidson.

Nurses' Home, Vanbrugh Hill.

The foundation stone of the new Nurses' Home (Woodlands), Vanbrugh Hill, S.E., for the Guardians of the Greenwich Union, was laid recently by Mrs. Drapper, J.P., Chairman of the Guardians, assisted by Mr. E. G. G. Bax, who was Chairman for 18 years. To commemorate the occasion Mrs. Drapper was presented with a silver salver and Mr. Bax with an ebony mallet (specially designed and made by Mr. A. Laurence Turner) by the architects (Messrs. W. A Pite, Son & Fairweather) and the quantity surveyor Mr. L. Jacob).

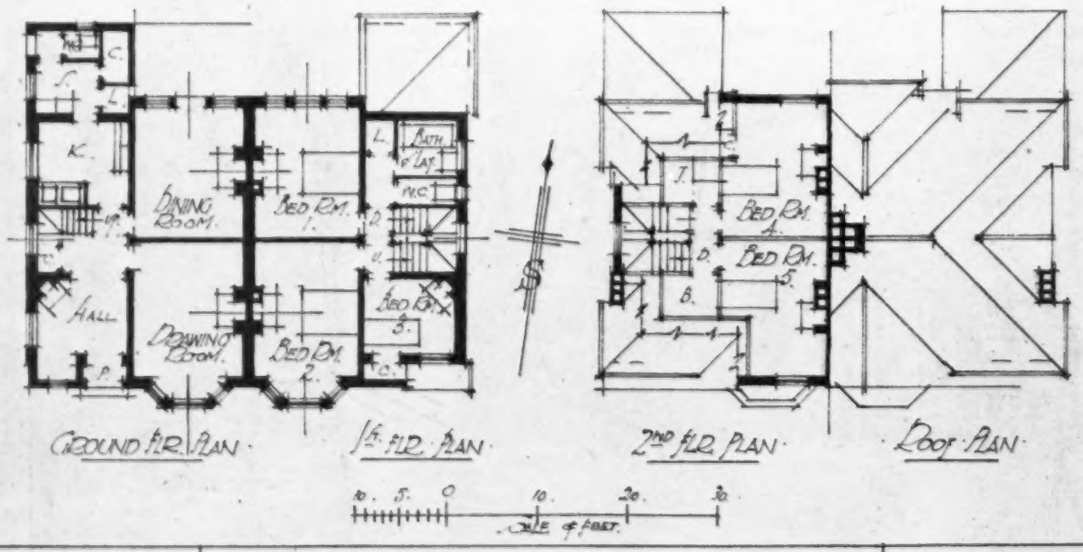
L.C.C.'s Housing Estate at Morden.

The housing scheme which the London County Council proposes to carry out near the new tube terminus at Morden, will involve the erection of 8,000 houses, and provide accommodation for about 35,000 people. If the Council's plan is upheld by the Ministry of Health, land situated in the urban districts of Sutton, Merton and Morden, Carshalton, and Mitcham, will be compulsorily acquired, the total area being about 870 acres. Included in the estate to be purchased is the historic Morden Hall; it is understood that this will be demolished.

New Headquarters for the Society of Friends, Euston-road.

MR. HUBERT LIDBETTER, A.R.I.B.A., Architect.

FRONT ELEVATION



SCALE-1/16 TO 1 FOOT. SEPTEMBER '25.

15 & 16, KEATS GROVE, HAMPSTEAD. FOR E.L. GREAVES ESQ.

ALBERT L. FARMAN ARCHITECT. 24, BURLINGTON RD. W.4.

REINFORCED CONCRETE IN BUILDING CONSTRUCTION

ARCHITECTURAL TREATMENT (I).

In ordinary building design and construction, the materials employed and the manner in which they are applied are mainly those adopted from time immemorial. In buildings of brick and stone, individual units are laid one above another in courses and held in place more or less efficiently by cementitious material, which, except in cases where cement mortar is used, offers little or no effective resistance to the disruptive forces which are always liable to occur.

The great height and considerable wall thicknesses entailed by this method of construction, to say nothing of the risk of injury in consequence of local settlement, or compression, of the soil, eventually led to the introduction of steel-frame building construction. This, however, is by no means free from inconvenient features. The steel skeleton does not lend itself to bonding with the masonry covering in a really satisfactory manner, and is very susceptible to injury by fire and corrosive influences unless efficiently protected by a closely adhering and impermeable casing, usually of concrete or reinforced concrete. The next step forward was the introduction of reinforced concrete construction, where the two constituent materials work harmoniously together, the steel lending its strength to the concrete, and the latter in turn preserving the steel from corrosion and fire, as well as taking its share of the stresses to be withstood.

In the case of a reinforced concrete skeleton, the architect is perfectly free to adopt any material desired for the enclosing walls. There is really no reason why this should not be done just the same as in the case of a steel skeleton. In fact, there is more reason, since reinforced concrete members can be readily bonded with enclosing masonry and the material is far more adaptable than steel to architectural forms.

The treatment of the exterior can readily be varied, wherever thought desirable, by revealing the vertical, horizontal and other members of the skeleton so as to form an effective contrast between the masonry and the concrete surfaces, or if harmony rather than contrast be preferred, pre-cast and finely finished concrete stone may be adopted with excellent effect for filling in the wall panels.

The frank revelation of the structural framework naturally leads to pleasing appearance and has the additional advantage of being in conformity with the established canons of architectural design. There remains, however, the question of the surface treatment of the exposed concrete, a question of still greater importance in connection with buildings where it is proposed to construct the walls as well as the skeletons in reinforced concrete.

In the building of factories, warehouses and industrial premises generally, architecture too often takes an insignificant place, but its value is becoming recognised more and more every year by commercial and industrial firms. Consequently there is ample scope for the employment of improved methods of surface treatment in buildings of utilitarian character, and the experience so gained cannot fail to be helpful to those who are seeking for the best method of dealing with concrete in the surfaces of buildings where the finish and general appearance of the exterior are matters of primary importance.

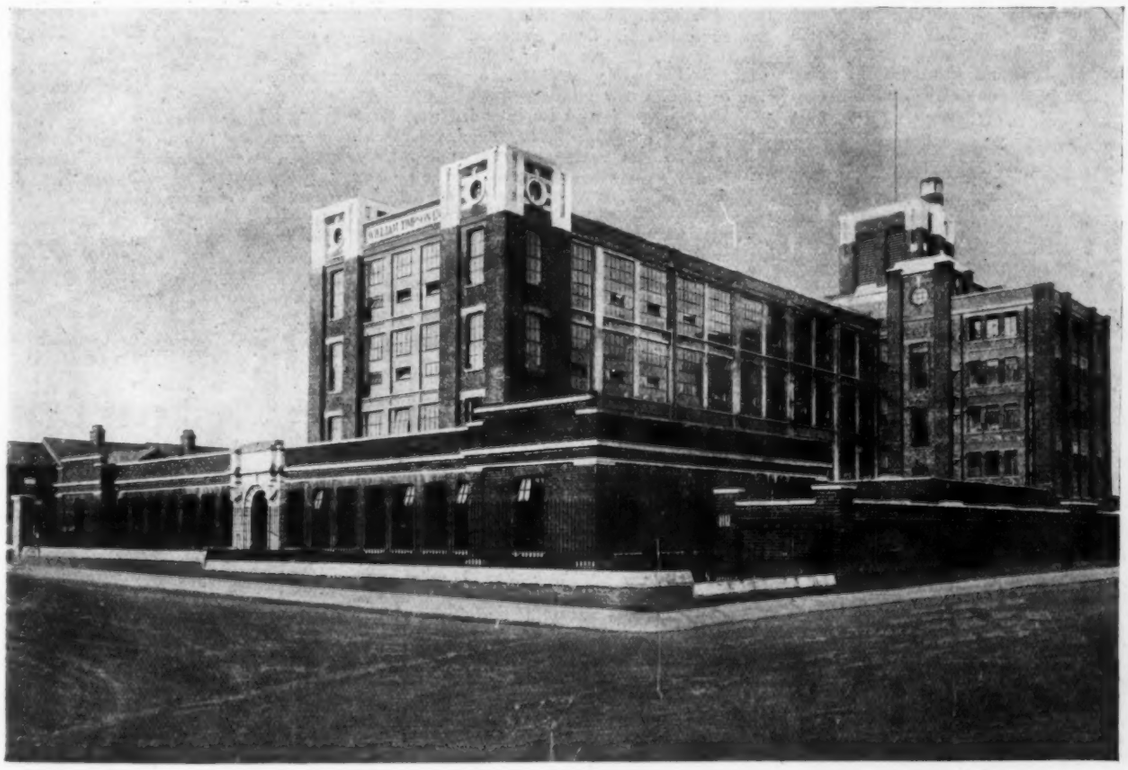
Nearly all structural materials require a good deal of treatment before they are fit for facing work, and the selection of a suitable variety of everyday materials, such as brick or stone, always involves the consideration of colour and texture. Therefore it is but reasonable to expect that concrete also will require some treatment and that discrimination will have to be exercised in the choice of sand and aggregate if the most pleasing results are to be obtained.

Early attempts to improve the surface finish of concrete were in the direction of stucco work with unmeaning joints and other details in imitation of masonry. Such treatment is bad structurally, for the reason that an applied coat of cement or mortar is apt to flake off in time; and is bad architecturally, because it is an obvious deception. A better method subsequently introduced was to rub down the surface so as to remove marks left by the shuttering, either leaving the concrete exposed or covering it with a wash of cement. While improving the surface finish, this treatment could not alter the hue of the material. The tint of concrete can, of course, be hidden by paint or colour washes, following an ancient practice still in favour. White cement and the coloured cements now available offer means of securing permanent tints, integral with the body of the structural material and therefore in every way preferable to outwardly applied pigments.

A view which has gained many adherents during the past twenty years is that concrete should be thought of as an aggregate, held in place by the least possible amount of hardened cement paste. By the careful selection of sand and aggregate, and by removing surplus cement from the face of the concrete after the removal of the shuttering, excellent and permanent colour effects can be obtained. For reasons of economy, special aggregates are not used throughout the body of the work, and are usually applied in a surface layer of concrete deposited at the same time as the ordinary concrete, but separated from it by a thin diaphragm which is withdrawn progressively as work proceeds, thus permitting the two kinds of concrete to set as a monolithic mass. In the case of industrial buildings where a sufficiently pleasing effect can be obtained by the use of ordinary aggregate, a special facing layer is quite unnecessary.

Subsequent exposure of the aggregate is effected by brushing off the cement with a liberal use of clean water, or a weak solution of hydrochloric acid; by the aid of pneumatic hammers or other tools; or by sand blasting.

All methods of treating concrete surfaces



Boot Factory for Messrs. William Timpson, Ltd., Kettering.

MR. R. J. WILLIAMS, F.R.I.B.A., Architect.

King's College Hospital, Denmark Hill, London, S.E.

VAULTED CEILING, WITHOUT PROJECTING RIBS, READY FOR PLASTERING.

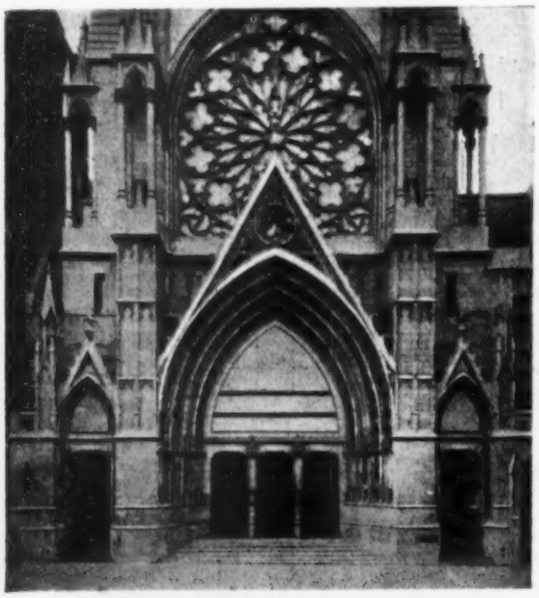
MR. W. A. PITE, F.R.I.B.A., Architect.

after the removal of moulds and shuttering necessarily add to the cost of building and militate against the rapid completion of work. A bold and successful attempt to produce concrete with a satisfactory texture by employing reeded and other specially prepared boards to form the inner side of the exterior shuttering must be familiar to all who visited the Wembley Exhibition last year. This ingenious device possesses the manifest recommendation that when the concrete has set and the shuttering has been removed, no further treatment is required beyond a certain amount of rubbing down at joints.

Finally, it should be remembered that concrete forms an excellent basis for decorative work in the form of panels, mouldings, string courses and other details, designed so as to emphasise the lines of the actual construction, and to convert the monotone of the concrete surface into an excellent foil for an appropriate colour scheme.

Although reinforced concrete has secured a permanent place in building and engineering construction, it occupies a comparatively unimportant position in British architecture. Much has been said and written concerning its possibilities, but so far as one can judge the profession as a whole is still awaiting the advent of the oft-prophesied architectural style for concrete. We have, unfortunately, no helpful indication as to the nature of such a style. Some there are who tell us it must be one suited to a plastic style; others consider it should be arcuate; others, again, foreshadow a trabeate style. While concrete is plastic in the sense that it can be moulded in any desired shape before the cement has set, the finished product is no more plastic than steel and other materials which can be moulded when in a molten state.

A style of architecture which may be appropriate to plain concrete houses made by pouring the material into a complete mould evidently could not satisfactorily express reinforced concrete construction, characteristic features of which are clearly defined members of structural elements, such as columns, beams and arches, based upon a pre-arranged network of steel bars, where only the exterior clothing of concete is moulded. Bearing this in mind, we are led to the conclusion that so far as form is concerned, reinforced concrete construction involves no essential departure from existing and traditional methods and principles of architecture. As the style of every building must vary with its intended use, there must obviously be many styles in practice, and to every one of these reinforced concrete can be applied in a perfectly appropriate manner, without necessarily reproducing details imitative of timber, brick or stone.



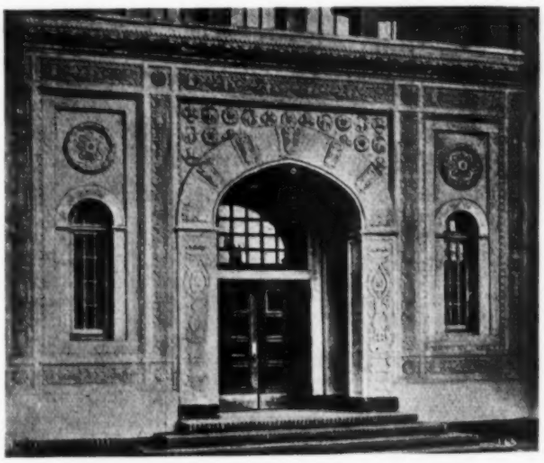
West Front of the Church of the Blessed Sacrament, New York.

PRE-CAST UNITS CARVED BY SCULPTOR AFTER ERECTION.

MR. GUSTAVE E. STEINBACH, Architect.

The development of reinforced concrete architecture is certainly not hindered by structural difficulties. The engineer has already demonstrated the universal adaptability of the material, the vivification of which with the spirit of art is now the task of the architect. In a paper dealing with this question, Mr. Irving K. Pond, a prominent member of the American Institute of Architects, made the following among other significant remarks:—"The æsthetic possibilities within the range of reinforced concrete can hardly be over-estimated, and little beyond the introductory chapter in its history has been written. Except in well-defined types designed to serve certain defined uses, it is impracticable so to carry masonry construction beyond and behind the façade as to result in a homogeneous structure, but the architecture of a reinforced plastic material may and logically will express itself throughout the entire structure to its remotest core. The unity, the truth, the harmony of the whole may in every part be manifested. Therefore, the possibilities inherent in concrete present themselves alluringly to the architect, to whom the art means as much as does the science of building." Finally, Mr. Pond expressed the opinion that structural concrete, both of itself and embellished with richer materials, furnished the new and seemingly adequate medium of architectural expression.

[The factory for Messrs. Tilling-Stevens Motors, Ltd., at Maidstone, and the Boot Factory for Messrs. William Timpson, Ltd., at Kettering (both shown in accompanying illustrations), were erected on the Kahn system of reinforced concrete (Trussed Concrete Steel Co., Ltd.).]



Entrance to School Building, California.

CARRIED OUT IN PRE-CAST STONE.

MR. W. E. WEEKS, Architect.

British Industrial Fair.

The Annual British Industrial Fair will be held under the auspices and support of the Board of Trade and the Birmingham City Council, and organised by the Birmingham Chamber of Commerce, in the Exhibition Buildings, at Castle Bromwich, Birmingham, from February 15 to February 26. Prospective exhibitors should apply for space, stands, &c., as early as possible. We are asked to state that the Government have agreed to spend a sum of money not exceeding £25,000 for the purpose of publicity at home and abroad; this will doubtless attract many additional visiting buyers.

Colouring Concrete.

A pink bridge is now being built by the Cumberland County Council on the Dalemain-road that runs between Penrith and Ullswater in order that it may harmonise with a house near by that is built of pink sandstone. Accordingly a percentage of colouring matter made up of pink Shap granite and Bowscar red sand has been used for the concrete aggregate. This experiment is being watched by those who are advising the L.C.C., who have decided to build coloured concrete cottages on their new housing estates.

Promotion of Village Trades.

The Rural Industries Bureau, formed to provide information and assistance required by local organisations for the promotion of rural industries, deals in its report for the year ended March 31, 1925, with the efforts which are being made to keep alive staple village trades closely allied to agriculture, such as those of the farrier, blacksmith, and wheelwright. Copies may be obtained from the Bureau at 258, Westminster Bridge-road, S.E.1.

THE CONFESSIONS OF A CAPITALIST*

No apology is needed for this timely propagandist essay, written as it is in a frank and straightforward manner with the intention of explaining the working of the much-criticised capitalist system as illustrated by the writer's experience in the successful conduct of his own business, carried forward with a wide knowledge of affairs. He supports his conclusions in a vigorous and comprehensive style, and whether his conclusions are acceptable or not, his book makes a constructive contribution to the economic literature of the subject, which cannot fail to be valuable, and certainly is unique, because there is no other case of an author confessing to an income of £10,000 a year who straightway explains how his system has so satisfactorily materialised.

He acknowledges that he "is an unrepentant believer in private enterprise and has failed to discover, in a long and diligent search, any considerable benefit which has reached mankind except through the agency of individual enterprise." The writer consequently regards the whole movement of creating wealth by political agencies as a snare and a delusion. No essential difference exists between the Bolshevik of Russia and the numerous types of contemporary Socialist, notwithstanding all assurances to the contrary, as both are committed to the abolition of private enterprise and both are the destroyers of human comfort. This summarises Sir Ernest Benn's outlook, while he regards "the frantic efforts of the Socialist to exclude the Communist from the councils of the Labour Party as illogical and futile."

Advocating "early savings," without claiming that his own position to-day is to be attributed entirely to thrift, he asserts that too much emphasis cannot be laid on the fact that saving remains the basis upon which not only progress of success is made possible, but it likewise affords the essentials of human comfort and wealth. Acting accordingly, the author prides himself that he has been a consistent saver all his life, keeping, however, the annual balance-sheet always in mind, remembering that "much more money is lost than made on estimates."

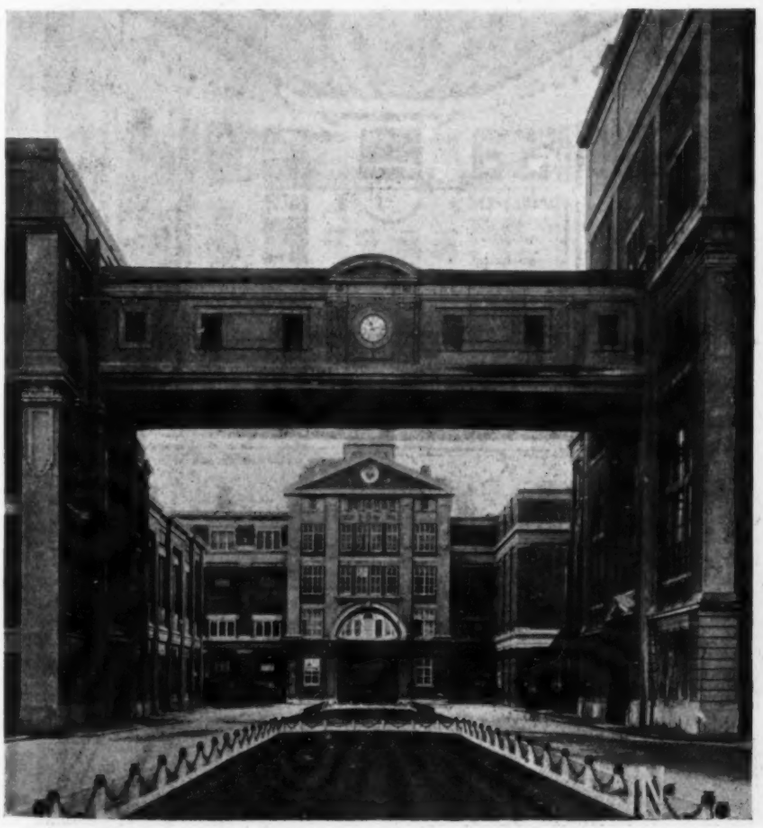
The end of the account is generally lost sight of by the world of people prepared by arguments and figures to prove how profitable this or that transaction should be, meanwhile ignoring as they do the inevitability of contingencies and much unexpected expense incurred with every undertaking should time be not reckoned as the essence of a contract. Many a success, no doubt, may have been attributed to failures, and Sir Ernest says: "Paradoxical as this may sound, I believe it to be literally true." Incidents in his career to warrant such a conclusion are interestingly mentioned, but Sir Ernest adds: "Saving, like mercy, is twice blessed."—"In my case I have merely used the little I have saved as a means to cover the risk of much larger transactions, for I have always owed much money."—"I have just completed arrangements to erect a building at a cost of £150,000, and this has been warranted, thanks to years of careful saving, as I possess sufficient to carry the margin of risk enabling me to obtain loans to finance this undertaking by erecting premises without, in a sense, technically owning the building. The £150,000, indeed, does not actually exist; it is the credit and character for responsibility in the balancing of things which counts in producing our building proportionate with the large monetary figure above quoted."

The same rule is illustrated by the operations of building societies and other organisations, enabling a house to be secured by £100 cash, the balance of the purchase money being paid out of rent. Assuming the proper rent to be 10s. a week, this capital sum so invested, in fourteen or fifteen years, the "simple shilling per week" may turn itself into a substantial remunerative sum. In America this is better understood, for nearly every street there has a savings bank at one corner—a fact which, it may be, explains the absence of enthusiasm there for Trade Unionism and other forms of collective activity which at present remains a leading characteristic of our country. What would have happened if the money contributed over the last twenty years in Trade Union dues had been applied by individuals to the purchase of their own dwellings? We should to-day have had 10,000,000 house owners and no housing problem! The well-known facts demonstrate that this is no dreamy conjecture of a person obsessed by the saving idea, because in the United States 11,000,000 working men own their homes, apart from the 10,000,000 who possess motor cars; while the larger number enjoy such minor advantages as telephones. "The whole science of capitalism," says the author, "wants bringing down from the lofty phraseology of economists to the solid basis of the shilling a week." He quotes Mr. Micawber, who called attention to the vital difference existing between 19s. 6d. and 20s. 6d., and Dickens thus began the story of the benefit of the weekly shilling ever so many years ago.

"The Wealth of Exchange" is the title of a detailed chapter showing trenchant arguments against the theory of nationalisation and demonstrating why private enterprise must be the only agency through which we can conserve wealth and secure further progress. Sir Ernest Benn cites one of his trade papers which he publishes, for fifty-two weekly copies of which 25s. a year is paid. In return the subscriber obtains 50s. worth of unprinted paper. He secures, in addition, a trade organ, and the same subscriber receives in postage stamps, with the wrappers, the equivalent of 10s. in the course of the year, during which period the proprietor pays printers, photographers, block makers, artists and many other people, to say nothing of editors and contributors, an average of £3 per subscriber. No doubt can, therefore, be entertained as to the benefit which each subscriber derives from this simple example of exchange. The advertiser pays well for his trade announcements, but if he were to decide to circularise he would have to pay for paper, printing, postage, wrapperings and addressing, something nearer £25 to reach the same people as he now pays £10 for through the medium of his trade journal. Besides, there is the risk of circulars being thrown away unopened by the receiver. The newspaper proprietor does really lose on every reader that he secures. The loss on the advertiser is not real, because the actual profit is made by putting together the announcements of a number of advertisers and printing them in conjunction all at once, while the trade journal is circulating good information and news incidental to the business affairs and enterprise in which all parties are concerned.

Every business, however successful, keeps what is known as a "Profit and Loss Account." There are, at all events, losses to be set against profits. The tax collector makes no assessments upon the man who loses money, and to add together all the income-tax assessments and talk of them as profits in the bulk is to look upon one side only of the account. Socialists invariably ignore the inevitable difficulty in meeting losses, and their sole solution is to tax the community to meet the difference. "If an American workman were offered an old-age pension he would question your sanity or honesty." "Nothing for nothing," he would say to himself, and inquire who was making a profit out of it and how much would he lose on the transaction. It is difficult for Englishmen to imagine 110,000,000 of people who know nothing of old-age pensions, of

* "The Confessions of a Capitalist." By Sir E. J. P. Benn, Bart. Hutchinson & Co., London. 18s. net. 1925.



Factory Buildings at Erith, Kent, for the Erith Oil Works.

health insurance, of unemployment, who can tell you nothing (without inquiry) about poor law, who cannot understand "limitation of output," and who, right down to every man and every woman, every boy and every girl, are keen to show how best to get things done quickly. America is no heaven, but it accepts the view that the function of industry is to produce goods efficiently, and it throws an enthusiasm, a vigour and a determination into this business of production which is indescribable to one who is saturated with current English industrial thought. We may add, in conclusion, that Sir Ernest Benn points out that although he makes a net gross profit of £10,000 a year out of his business (which provides wages for a vast number of employees both inside and outside of his establishment, involving a considerable amount of money) he has to hand over half his profit of £10,000 to the Chancellor of the Exchequer. So he naturally asks: "Whom do I rob?"

Archæological Discoveries at Ur.

An account of interesting discoveries as the result of the excavations at Ur of the Chaldees conducted by the British Museum in co-operation with the University of Pennsylvania, is contained in a report received from Mr. C. Leonard Woolley, the leader of the excavations, issued by the British Museum authorities. The excavators traced out the inner face of the great wall built by King Nebuchadnezzar round the old buildings of the Sacred Area of Ur and found its south-west gate. Then, going deeper, they laid bare some houses which seem to have been last inhabited about 693 B.C. Beneath this were found pots of archaic forms; a collection of beads in gold and silver, lapis lazuli, and cornelian; a pair of rams carved in white gypsum, dating from about 3,000 B.C.; a plaque of alabaster carved on both sides; and a fine example of Sumerian sculpture—the head of the moon goddess in white marble.

Old Guildhall Damaged.

Part of the frontage of Poole's fourteenth-century Guildhall, Scaplen's Court, has collapsed through the action of the bad weather, historic relics being destroyed. The valuable relics of Scaplen's Court were only discovered about twenty months ago through a chimney-stack falling through the roof. A fine fourteenth-century fireplace was then found, with the initials of Cromwell's troops scratched on it.

War Memorial Chapel at the Royal Military College, Sandhurst.

Mr. ARTHUR C. MARTIN, F.R.I.B.A., Architect.

A "DENSITY" CHART.

IN any district where a town-planning and housing scheme is adopted, or even in preparation, the size of a building plot is virtually prescribed. If the scheme is finally approved, it is definitely illegal to build a dwelling-house on a plot smaller than that required by the scheme, while if the scheme is in preparation, such a course can be followed only at the builder's risk—he may afterwards be compelled to pull the house down at his own expense. It is therefore of paramount importance for all concerned with building to know whether a proposed building plot complies with the regulations. In town-planning schemes it is usual to define the size of a plot by stipulating a maximum number of houses per acre.

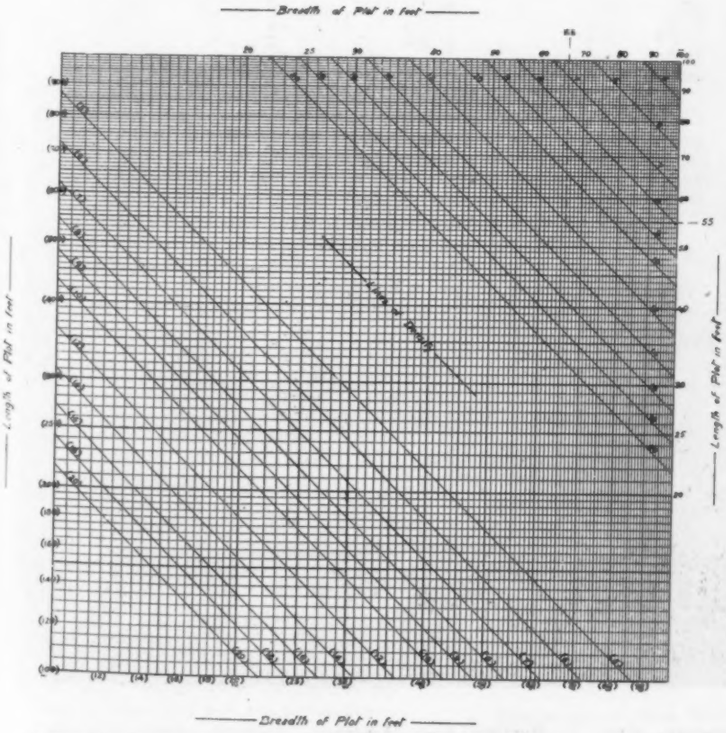
The chart shown has been compiled to show at a glance all the different plots that would comply with a given density restriction. For instance, in an area with a maximum density of eight houses per acre it would be permissible to build one dwelling house on a plot of 40 ft. by 150 ft., or of 30 ft. by 200 ft., or of 25 ft. by 250 ft. as shown by the dotted lines on the lower part of the chart. These plots would give practically the fullest development of the land under the assumed density restriction of eight houses to the acre, although, of course, any larger plot would be equally permissible.

There may also be other regulations which will affect the proportions of the plot, and these would have to be considered after the density requirements have been satisfied. The chart has already proved useful to a local authority in rapidly determining the density that would result from plot plans submitted to them. It can also be used in the preparation of town-planning schemes for ascertaining in any neighbourhood the existing densities so as to show the prevailing type of development. This is a useful guide in prescribing density restrictions.

In using the chart it is useful to remember that where a building plot fronts on a road, half the width of the road may usually be included in the plot. Thus a plot 150 ft. deep with a frontage of 30 ft. on a road 40 ft. wide would count as a plot measuring 170 ft. by 30 ft. In the chart the dimensions of the plot in feet are figured along the left hand side and along the bottom. It is immaterial which dimension is regarded as "length" and which as "breadth." The sloping lines represent density; (5), (6), (7), &c., houses to the acre. Selecting one dimension on the left hand side, proceed horizontally to meet a vertical line from the other dimension chosen on the bottom of the chart. If the meeting point lies, for instance, between the sloping lines marked (9) and (10) the resulting density will also be between 9 and 10 houses per acre.

The top right hand portion of the chart is exactly similar, except that all the figures are without brackets, to distinguish them from the first set. This part of the chart deals with plots whose dimensions do not appear on the other portion; a plot measuring 66 ft. by 55 ft. is shown as an example. The resulting density would be, in this case, exactly 12 houses per acre.

CHART SHOWING NUMBER OF BUILDING PLOTS PER ACRE.



"Density" Chart for Use in Connection with Housing Schemes.

Outlook for the Building Industry.

The building outlook is described in the *Trade and Engineering Supplement of The Times*. An article points out that there are some doubtful factors in the labour situation, owing chiefly to the action of the plasterers, bricklayers and masons in cutting themselves adrift from their federation. Because of this internal dissension and of the attitude of certain employers in playing into the hands of the men, the writer of the article foresees the possibility of very serious disputes. The trend of prices, the problems of alternative methods of construction, and the question how output can be improved, are discussed. Early this year, it is added, the National Wages Council should be working again under a revised constitution, and the way may thus be paved for a general decrease in building prices next March.

ARCHITECTURAL ENRICHMENTS

THE variety of work which is required for the enrichment of buildings is well exemplified in a little pamphlet just issued by Messrs. John Daymond & Son, illustrating various carved work which they have recently done. The names of many eminent architects are noted as having commissioned Messrs. Daymond to execute enrichments to their buildings; the firm dates from the year 1853 and has worked under a large number of our best architects. It is not likely that any firm of craftsmen could compile a more interesting record of work done. We give two examples herewith.

Carved and Inlaid War Memorial Lectern, Rugby School.

SIR CHARLES NICHOLSON, F.R.I.B.A., Architect.

Altar and Tryptych, St. Edmund's College, Ware.

MR. FREDK. A. WALTERS, F.S.A., Architect.

WAREHOUSE, AINTREE

A six-story warehouse has been added to the Aintree factory of Messrs. Wm. P. Hartley (London and Aintree), Ltd., the well-known preserve manufacturers. It is placed centrally between two existing warehouses, to which it is joined by means of connecting corridor-blocks. The overall sizes of the building are 134 ft. by 64 ft., and the height above ground floor 63 ft.

The construction is a steel frame, with floors of reinforced concrete and hollow tiles. The foundations, in order to resist the heavy loading of the floors, are in the form of a continuous reinforced concrete raft under each line of stanchions, and measuring 88 ft. long by 7 ft. wide. The walls are of brick, with Huncoat Plastic outside facings and terra-cotta and Colne stone dressings. The roof is an asphalt-covered flat.

The contractors for the steel frame and ferro-concrete foundations were Messrs. McIntyre & Sons, Ltd., Liverpool. The general contractors were Messrs. G. Platt & Sons, Ltd., Liverpool. Floors by the Fram Reinforced Concrete Co., Ltd., Manchester. Steel casements by Messrs. Mellowes & Co., Ltd., Sheffield; electric lift by Messrs. Waygood, Otis, Ltd. The architect is Mr. Fredk. W. Nicholson, A.R.I.B.A., of Aintree, and the clerk of works Mr. J. Breckell.

New Warehouse for Messrs. Wm. P. Hartley, Ltd., Aintree.

MR. FREDK. W. NICHOLSON, A.R.I.B.A., Architect.

BOOK REVIEWS

The Principles of Decoration. By R. G. HATTON. (Chapman & Hall, Ltd.) 10s. 6d. net.

"The Serpent which enters into the artistic paradise is the fear of not being original. People get the idea that designing is finding the never-seen-before. This is a great mistake. It is stupid to dodge the sensible solution of a problem merely because something of the sort has been seen before. Anyone can decorate, because anyone can sufficiently master some simple means of making a glad effect. The samplers of our great grandmothers were sets of units to be applied to various circumstances. Their application demanded taste and judgment—proportion, colour and position had to be designed. From that came the touch of originality, ancient as the motifs were."

And that is Chapter II ("Originality") of Professor Richard J. Hatton's "Principles of Decoration." If brevity is the soul of wit—or wisdom—we have it there; and how one might long to sit under the Professor's eye and within sound of the professorial voice at Durham University! He would not teach us how to decorate, if such a thing can be taught, and if we read him aright, it cannot. He would teach us the principles and guide us in the right direction and, once accepting that direction, we should instinctively avoid any divergence. In short, we should learn to apply that innate sense which, he says, we all possess in some degree, of making the "glad effect." He shows us this joyousness in his first little decorative motif in Chapter I ("The Purpose of Decoration"). It is a little outline drawing, approximately an inch and a half square, of a ship in full sail—shall we call it a galleon, and does it remind us of a Durer woodcut? It is a design for the decoration of a bag. The ship and the added chequer pattern below may be coloured in two or three different hues of red, such as scarlet, crimson and orange. "The red is the revel of gladness, the ship is something recollected, the lines of the ship and the chequer-pattern below are intellectual or geometrical, the bag is a thing of use. Let us note that neither the red and black of the revel, nor the ship, nor the geometrical pattern, have anything whatever to do with the bag. In brief, the art of decorating is one of uniting three totally alien elements—effect, subject and object."

But look at the little galleon again. The first impression is that it consists of about a dozen lines; actually they count up to about half a hundred—just lines without a vestige of shading—and there is joyousness in every scratch of the gravers' tool, from the garboard-strake to the main truck, and flowing humour from the rolling wave and curving plank to the bellying sails and taut sheets and rigging. The tang of salt is in the air. Six rays projecting from a semi-circle in the top corner of the picture show that "God's in His Heaven—all's right with the world." Phœbus and Boreas have set their seal upon it and the mind leaps to the joyousness of it.

We once heard a sweeping assertion that Ruskin spent half his life in teaching us that Turner was the only artist we should strive to imitate, and the other half in most solemnly assuring us that if we lived to the age of Methuselah we should not succeed in the attempt. Perhaps the real moral of it all is that no man—not even a Turner or a Ruskin—can teach us to paint; but Ruskin could show us that Turner was the one man who could see nature eye to eye, and if after incessant striving we could but see her as in a glass darkly we should be somewhere on the right path.

Professor Hatton does not set out to teach the student how to design or decorate, but he does teach the principles in a language intelligible even to the lay mind. His short chapters—all the thirty-four chapters are short—on "Kinds of Beauty," "Artistic Quality," and "Geometrical Intellectuality," are things of real joy, and we prefer not to anticipate the readers' pleasure by quoting from them.

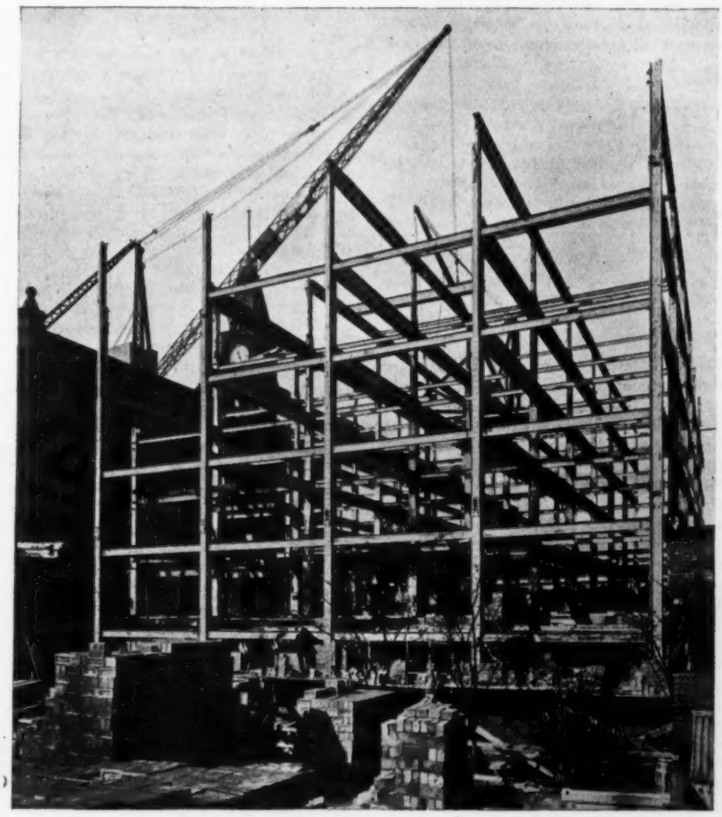
Commercial Arbitrations as Governed by the Law of England. By ROGER S. BACON, of the Middle Temple and Northern Circuit, Barrister-at-Law; Editor of Payne's "Carriage of Goods by Sea," with an Introduction by SIR W. PETER RYLANDS, President of the Iron and Steel Wire Manufacturers' Association; President of the Federation of British Industries, 1919–1920. (London: Herbert Jenkins, Ltd.) 1925. 8s. 6d. net.

This little treatise has been prepared mainly to give commercial men a comprehensive view of the law relating to arbitration without the technicalities found in legal text books, and we think we can endorse Sir W. Peter Ryland's observation in his introduction, that the author "has performed a valuable service to them in writing this book in language which can be understood by laymen and which throws a beam of light upon the many and great complexities that surround the subject." The work so far as we have examined it appears to differ from the so-called "popular" text-books dealing with legal subjects, in that in a more or less narrative form the various stages in an arbitration are dealt with in clear terms, whilst the author gives some practical hints, as, for instance, on the advantages or disadvantages of resorting to arbitration in place of bringing an action.

The author vouches his statements on the law by references to the decided cases, but he does not break the text by interpolating the names of the cases; the titles of the cases are contained in an appendix and the passages in the text bear numerals referring to the titles of the cases in the Appendix IV. In the Appendix the chapters are referred to in sequence, the cases occurring in each chapter having numbers prefixed to them which correspond to the numbers in the text. This form of reference is a little difficult, as to find the reference to any case in the text it is first necessary to find the chapter, and the chapters are not indicated at the head of each page, but the commencement of the chapter has to be found by turning to the page at which it begins. Perhaps, however, any such difficulty in quick reference will be more apparent to the lawyer than to the layman, and in any case the inclusion of the titles of the cases and the references to them in the law reports enhances the value of the work, and there is a good Index. In the Appendices there is also an alphabetical table of cases, and the relevant sections of the Arbitration Act, 1889, and the Administration of Justices Act, 1920, Forms and Precents, as well as a Commentary on the Arbitration Clauses (Protocal) Act, 1924, are given. The treatise appears to afford the layman an accurate and extremely easy guide to the law of arbitrations, presented in an attractive form yet free from unnecessary technicalities, and it should prove acceptable to those it is designed to instruct.

The New Conveyancing. By SIR ARTHUR UNDERHILL, LL.D., Bencher of Lincoln's Inn, and Senior Conveyancing Counsel of the Court; Author of a Treatise on the Law of Trusts; and General Editor of the Encyclopædia of Forms and Precedents, assisted by Lilian Mabel Snow, of Lincoln's Inn, Barrister-at-Law. (London: Butterworth & Co., 1925.) 37s. 6d.

OUR readers are already aware that the law relating to conveyancing has been the subject of considerable legislation with a view to its codification and ultimate simplification, and that to attain this end six statutes were passed last year, viz.: (1) the Law of Property Act; (2) the Administration of Estates Act; (3) the Settled Land Act; (4) the Trustee Act; (5) the Land Charges Act; (6) the Land Registration Act. In addition to the above there was also passed the Universites and College Estates Act, but the author of the treatise we are considering explains that this Act, and the Land Registration Act, stand quite apart from the other statutes which deal with the general law and practice of conveyancing, and therefore they are excluded from this volume. The author is careful to



Steelwork of New Warehouse for Messrs. Wm. P. Hartley, Ltd., Aintree.

MR. FREDK. W. NICHOLSON, A.R.I.B.A., Architect. (*See p.* 82.)

explain in his preface that this work is not intended to be a detailed treatise on the Acts but a "sketch or introduction" intended merely to afford that kind of professional knowledge, "a general and habitual knowledge of the broad principles of law."

The work is divided into four parts: Part I, General Survey of the Property Acts; Part II, the Property Statutes; Part III, Analytical and Comparative Tables; Part IV, Subject Index to the Property Statutes. As regards the bulk of the volume this is unavoidable, as the statutes themselves are very voluminous and they consolidate some seventy-seven existing Acts. There are some blank pages also included in the paging for memoranda. Part I appears particularly helpful in its general survey, and this comprises some 122 pages, giving a general idea of the changes effected in the law.

We here find a point made clear which we recently found obscure, viz., the extent of the repeal of the Law of Property Act, 1922, and the Amending Act of 1924. These Acts are repealed, "with the sole exception of those parts which relate to the abolition of (1) copyholds and customary estates, (2) perpetually renewable leaseholds, which subjects, being of a transitory nature, were left untouched so as not to encumber the new Acts with matters which will, of necessity, cease to exist in a very few years." The sections of those Acts which remain in force will be found collated at pages 151-199. The text of the new Acts is given in full. The great difficulty the practitioner has to deal with when well-known statutes are consolidated is how to discover his old friends—say, particular sections of old Acts—in their new guise, therefore we have particularly devoted our attention to see how this process of identification is assisted in the work before us. We find, first, there is a "Comparative Table of Statutes": Here will be found the title of every statute consolidated, with a note of the extent of repeal and a reference to the position sections retained occupy in the new Acts. In addition to this there is a Table showing the extent of the repeal of former Acts, and then the Index is so arranged that under each entry there is, where possible, a reference to the material section in the new Acts.

These Tables and the Index, taken by themselves, would form a reliable guide to the subject and greatly assist practitioners, and we have no doubt that this work as a whole will be welcomed by the profession as affording them the greatest assistance in grappling with one of the most drastic attempts to codify the law which has ever been made in this country.

Papers of the Society of Mural Decorators and Painters in Tempera. Edited by JOHN D. BATTEN. (Brighton: The Dolphin Press.) 1925.

This volume is the second published by the Society; the first series printed in 1907—now completely sold out—was issued when the Society was known under the less cumbersome title "The Society of Painters in Tempera." The volume includes information which covers a wide field both in regard to methods and materials of the painter's craft. Among the contributors are Lady Herringham, Mrs. M. Sargant Florence, John D. Batten, Holman Hunt, Noel Heaton and others, who bring much practical experience to the subjects with which they deal. A letter contributed from Mr. Holman Hunt affords useful information in regard to the "locking-up" of fugitive pigments, which will afford some surprise to the orthodox painter, and shows the caution desirable in the use of mastic.

Mr. Noel Heaton presents us with an interesting and exhaustive examination of the frescoes at Knossos, which includes an analysis of the composition and method of the plaster ground, in which he draws attention to the importance of the lime used. The absence of joints in fresco painting, these being the joins occasioned by the junction of the new surface to the plaster for each day's working, raises the issue as to whether these Knossos paintings are in fresco. On this matter Mr. Heaton offers us an explanation of possible validity. Not having seen the Knossos paintings, we can only suggest for consideration the difficulty there is in distinguishing between tempera and fresco painting. Though the methods are so different, the results are sometimes very identical. In regard to the penetration of the vehicle into the surface, if it is desirable to secure the permanence of tempera, it is important that the colour should enter the surface of the plaster, for which reason an absorbent surface is desirable; and if we made the distinction between fresco and tempera to rest only between the evidence of this penetration or not we should be misled.

The skill of the painter and the mastery of his material have almost as much to do with the permanence of his work as the consideration of the particular method employed. A certain absence of practical familiarity in the use of tempera is found in the constant reference by writers to the difficulty arising through the difference in colour when dry, which is variable according to the amount of medium used. To any artist properly familiar with the tempera method it cannot be counted a difficulty at all, though no doubt one to the beginner. Tempera painting, in our experience, proves very stable in this climate where properly used, and has an advantage over fresco in the freedom from process, and the arbitrary requirements which govern the latter.

Mrs. Sargant Florence gives an account of her frescoes at Oakham School, with particulars of the method she employed. The experimental fresco class, held at "The Halsteads" in 1913, is described by Mr. J. D. Batten, in which the method was tested both under outdoor and indoor conditions. In preparing the wall surfaces, a skilled plasterer laid the first coat and after the final coat had been rendered on the walls so prepared, paintings were executed by Mr. Batten, the late Sir Charles Holroyd, and students from the art schools. As the result of subsequent examination many years after, in 1922, it was found that the fresco executed out of doors had suffered injury, but that in the stable the paintings remained in perfect condition. The chief interest of the artist is towards creation, to make plastic the ideas of beauty which inspire him: in this he is aided by the fitness and adequacy of the pigments and mediums through which he labours, and through which his work is given security. Towards the achievement of this ideal this series of papers offers valuable assistance, and the volume should be in every institution concerned with the craftsmanship of art, while to the artist it will afford an invaluable handbook. We therefore confidently recommend it to our readers.

Furniture in England from 1660 to 1760. An Account of its Development and Design. By FRANCIS LENYGON. Second edition, revised (Batsford.) Price £2 10s. net.

In this second edition the author states that he has eliminated certain examples of late date, as being outside the scope of the work, and a number of early and middle Georgian pieces have been substituted, so that the volume has been made as complete as possible. The book will be welcomed on account of (1) the thoroughness of its literary matter, which shows a wide knowledge of the subject, and (2) the excellence of its illustrations. The latter include many fine examples beautifully reproduced from photographs, of furniture of the periods dealt with. These are from historic collections, in noblemen's seats, country houses, and other well-known collections only accessible to the few. The illustrations cannot fail to be of great value to connoisseurs and collectors, given as they are to a size that enables the characteristics of the mouldings and carving to be easily studied. The volume contains over 400 of these illustrations, 104 being full pages, five of which are in colour, and they are classified under subjects; this being so, the evolution of the different pieces can be easily followed. This volume is the third of the four entitled "The Library of Decorative Art," notices of which have appeared in our pages.

Books Received.

ABBEYS. By M. R. James. (London: Great Western Railway.) Price 5s.

THE DECORATOR'S AND RENOVATOR'S ASSISTANT. (London: Crosby Lockwood & Son.) 2s. 6d. net.

MODERN BUILDING PRACTICE. By William Harvey. (London: 9, Queen Anne's Gate, S.W.1.) 5s. net.

HOUSE DRAINAGE. By H. Alfred Roechling. (London: The Institution of Sanitary Engineers.) Price 2s.

BUILDING MATHEMATICS. By R. W. M. Gibbs. (London: Blackie & Son, Ltd.) Price 4s.

RELATION IN ART. By Vernon Blake. (Oxford University Press.)

ON THE ROAD. By Ed. J. Burrow. (London: Ed. J. Burrow & Co., Ltd.) Price 6d.

THE NEW LAW OF PROPERTY. By Alfred F. Topham. (London: Butterworth & Co.) Price 15s. net.

GLI STILI. By Alfredo Melani. (Milan: Ulrico Hoepli.)

Accepted Design for Pontardulais War Memorial.

MR. D. MORGAN, Architect.

This design was awarded first place in a recent competition. The base, steps, and plinth are to be of Blue pennant, the plinth-mould, stiles, lintels, caps, &c., of fine axed Peterhead granite, the panels, figure, and cross of "White" granite, the panels polished. The plan is square and the four sides are similar. On the lower panel the names of the fallen may be inscribed. The acorn and oak branch directly above symbolise permanency of memory; the centre panel contains an alliterative stanza. In the top panel is a bas-relief of a heart encircled by a laurel wreath, symbolising that victories are gained at the price of wounded hearts. The figure represents motherhood, with her left arm round the cross for support, and with the right extended, offering an olive branch. At the foot of the cross are thrown some war implements (one foot of the figure rests on a shell), setting forth their impotence; the whole symbolising, as stated thereon in Welsh, "The only hope of Peace."

ARCHITECTS' & BUILDERS' INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as legibly as possible, or, better still, in typewriting!—ED.

Proportioning Concrete.

SIR,—It is regretted that my previous letter was not sufficiently clear for you or your readers to give quite the information I wanted. The point is as follows :—

On making a trial of the voids in the aggregate a box of the capacity of 17.66 cubic ft. was filled with coarse aggregate, and half that quantity of fine aggregate (sand), the water expulsion test giving 50 per cent. voids. Mixing the two quantities together and refilling the box, the whole quantity does not go back into the box, 7¼ cubic ft. being left over. As the specification asks for 6 parts aggregate to 1 of cement, it would appear that the requirements of the specification are fulfilled by the quantity of mixed aggregate which the box contains : 17.66 cubic ft. aggregate to 2.75 cubic ft. cement, approximately. The 7¼ cubic ft. which does not go into the box on the second measuring of the materials being used in the mixing of the concrete, my contention is that the mix is a 9 to 1 mix, and a quantity of cement equal to one-sixth the 7¼ cubic ft. left over should be added to be in accordance with the specification. The question is : Should the 7¼ cubic ft. left over be included in the calculations to ascertain the amount of cement required for the quantity of aggregate used in this case ? G.E.S.

[It appears to us that if the specification asks for 6 parts aggregate (including coarse and fine material), to 1 part of cement, the contractor cannot be conforming to it if he employs 9 parts aggregate to 1 part of cement. The 7¼ cubic ft. left over should have one-sixth of its volume of cement mixed with it if the whole of the concrete is to be a 1 : 6 mix. As we stated, in our opinion it is far preferable to specify the definite quantities of coarse material of a given size, sand, and cement, which have been ascertained by test to give the desired strength, and to proportion them by volume. On this point we hardly agree with the letter from "Supervisor" in our issue for December 4. Although there are many cases where a trusted foreman or clerk of works has the knowledge to get the correct proportions, a specification has to provide against every contingency, and for this reason we contend that it is safer, as a general rule, to specify definite proportions. If a uniform material, supplied from the same source, is used throughout a job it will be found that the size does not vary a great deal. Poor concretes are more often produced by too great a water content than by wrong proportioning of cement to aggregates. A simple test, such as the slump test, made on the job from time to time, as the work proceeds, is becoming more generally used in this country, and by far the best method of keeping the concrete of a uniform strength. When this method is used, the concrete can be expressed in terms of "slump" rather than by proportions.—ED.]

Exceeding P.C. Sums.

SIR,—In a certain bill of quantities, nett prime cost sums were allowed for the usual fittings, viz., sanitary goods, stoves, furniture, &c. The builder, when pricing, was to allow for profit and fixing. What is the legal position should those P.C. sums be exceeded ? Is the builder entitled to charge proportionately for profit and fixing ? My own unqualified opinion is that he is not, unless more work is involved in fixing the higher priced articles. In nine cases out of ten I imagine that the cost of fixing these articles is about the same, and there is no just ground for the contractor to ask more for fixing than allowed in his price.

In the same bill of quantities a certain P.C. sum was allowed for a central heating installation of twelve radiators, the contractor to allow in his price for profit and fixing. This sum proved inadequate, and it was agreed that the client should obtain tenders from firms specialising in this work, should accept one of them, and should pay the successful firm direct, paying the contractor only for attendance on the fitters. Although the eventual cost was higher than allowed in the quantities, the installation was exactly the same size. It seems to me that the contractor should not be allowed to charge more for attendance than he allowed in his original price, and should charge nothing at all for profit as the client is paying that direct to the heating engineers. INQUIRER.

Damp Proofing Walls.

[REPLY TO "INQUIRER," DECEMBER 18.]

SIR,—If the trouble really is over-porosity of bricks, the best treatment is to coat the external face with a good petrifying liquid ; but if, as is quite possible, it is defective pointing, it will be necessary to rake out and re-point in cement and sand, 1 to 1. Provided the bricks are sound, no further treatment will be necessary. CAUSE.

Four-flatted Blocks.

[REPLY TO W. D., DECEMBER 25.]

SIR,—Your correspondent will find that he will want all his capital of £250 merely to establish himself with plant, office, and a working balance at the bank, so he can reckon that he will have to borrow the whole of the money, at any rate for the first block, which will amount in most districts to close on £2,000, and which will cost him at least 5 per cent. without any arrangement for repayment. I think I am right in saying that in many districts it is necessary to give three bedrooms to qualify for subsidy, but presuming subsidy were granted at £75 per house, this would leave an annual charge of £85 to meet as interest on loan, and a further £50 or so per annum for empties, repairs, and renewals. The income to meet these obligations would amount to £125 or so, presuming the tenant paid all rates. It is therefore obvious that the proposition is not economical. Your correspondent may be clear that by improved methods he may be able materially to reduce the cost of building, but he must remember that for years the best brains of the country have been concentrated upon economical building, and that almost all municipal schemes have been built at a loss, and that it is improbable that, on a smaller scale, a scheme of working-class dwellings to let could be made an economical proposition. Your correspondent would be better advised to concentrate on building subsidy houses to sell. The turnover is quicker and, speaking from experience, there is a fair return to be obtained, leaving a reasonable income to a small man, even when all or nearly all capital is borrowed. I should suggest the Chamberlain subsidy, as this leaves it open to let or sell. ADVICE.

A Search for Knowledge.

SIR,—I wish to construct a staircase, 3 ft. wide, of reinforced concrete, leading from first to second floor ; pitch of room, 13 ft. 4 in. I propose to make it in two flights, the first one to consist of eight steps, then a quarter-space landing ; the next flight to have fourteen steps, the rise of each to be 7⅜ in. and tread 9 in. approximate. The length of longest flight will be about 13 ft. The stairs can be cast in the wall on one side, which is 14 in. thick.

Will you please tell me how far in the wall they should go ; what steel rods to use, position, and how far apart ; what thickness concrete would have to be from soffit of stairs to internal angle where riser meets tread ; the thickness of quarter-space landing, and would it need any support, or could all the weight be carried at foot of stairs ? Also what size girder would it be advisable to have to carry the base of the stairs, assuming length of girder to be width of stairs and supported at both ends ? Any information on the subject would be appreciated. I have a quantity of ⅜ in. and ½ in. round steel rod ; would that be suitable ? A. J. F.

[*** See our Note, page 37.—ED.]

Oak Block Floors.

SIR,—I shall be obliged if a reader of your journal will give particulars for preparing the mixtures for laying oak block floors ⅜ in. thick on concrete base. NOVICE.

Sewage Disposal.

SIR,—Accommodation is required for a permanent latrine for about 12 men on an isolated piece of land near a water company's river. Will any kind reader advise me of a scheme for disposing of the sewage ? If a septic tank is recommended, where could I obtain particulars of construction ? CLERK OF WORKS.

Sealed Cavity : Question of Gas Risk.

[REPLY TO "CAVITY," JANUARY 1.]

SIR,—The risk of creating gas is very remote. Many years ago most baths were covered in by wood framing or marble lining, and to guard against such risks as "Cavity" refers to an external air brick was inserted. Why not insert air bricks in the internal and external walls of both bathrooms—9 by 9 L.C.C. pattern for preference ? G. W. H.

MEETINGS

FRIDAY, *January* 8.

Glasgow Architectural Craftsmen's Society.—Social meeting. At Ca'doro Restaurant. 7.30 p.m.

MONDAY, *January* 11.

Architectural Association.—Mr. H. M. Robertson on "The Paris Exhibition." At 34, Bedford-square, W.C.1. 7 p.m.

Surveyors' Institution.—Mr. W. L. Taylor on "Recent Forestry Development." At 12, Great George-street, S.W.1.

Institution of Electrical Engineers.—Discussion on "Electrical Installation in the Rockefeller Buildings, University College, by Mr. W. C. Clinton. At Savoy-place, W.C.2. 7 p.m.

TUESDAY, *January* 12.

Institution of Civil Engineers.—Discussion on the "High-Level Bridge, Newcastle-upon-Tyne : Underpinning and Repair of Foundations of River Piers," by Mr. C. F. Bengough. At Great George-street, S.W.1. 6 p.m.

College of Estate Management.—Mr. E. M. Konstam on "The New Rating and Valuation Bill." At 35, Lincoln's Inn Fields, W.C.2. 5 p.m.

WEDNESDAY, *January* 13.

L.C.C. Central School of Arts and Crafts.—Sir Banister Fletcher on "German Renaissance." At Southampton-row, W.C.1.

Liverpool Architectural Society.—Mr. W. Naseby Adams on "Taste." At 13, Harrington-street.

Edinburgh Architectural Association.—Professor A. P. Laurie on "Stone Decay." At 15, Rutland-square. 8 p.m.

Institution of Structural Engineers (Lancashire and Cheshire Branch).—Professor J. Husband on "The Lateral and Transverse Bracing of Bridges." 59, Hulme Halt-lane, Newton Heath, Manchester.

Institution of Engineers-in-Charge.—Mr. J. W. L. Rowe on "Industrial Economics." At St. Bride's Institute, Bride-lane, E.C.4. 8 p.m.

Institution of Civil Engineers.—Discussion on the "Testing and Examination of Materials for Railway Construction," introduced by Mr. F. J. Paice. At Great George-street, S.W.1. 6 p.m.

THURSDAY, *January* 14.

Royal Academy.—Sargent Memorial Exhibition. At Burlington House, Piccadilly, W.1.

Italy's Proposed Academy.

The Cabinet has approved of Signor Mussolini's scheme for the establishment of an Accademia d'Italia, with a seat in Rome, to promote ntellectual movements, science, letters, and art.

THE BUILDING TRADE

THE RELATIONSHIP BETWEEN THE ARCHITECT AND THE BUILDER

By J. H. BARNS, F.I.O.B.

WITH the many thousands of architects and builders practising and carrying on business in England, no general remarks could apply to relationship between them all. The legal position of the architect and builder with reference to contracts has been more or less defined by the many decisions on the various points which have arisen, and it is unnecessary to attempt to deal with the relationship between the architect and builder when relations have become sufficiently strained to warrant legal steps being taken. These notes, therefore, are rather a consideration of those ordinary relations which should and do exist between the architect and builder in the course of carrying out work.

It is customary and usual for the building owner to get into touch with an architect and engage him to prepare the drawings and generally to advise him in his professional capacity. At this stage of the proceedings a difficulty that usually arises is that the building owner states his requirements and the architect finds that on roughly working out the approximate cost the amount would be very much more than his client would be prepared to pay, and thus early in the proceedings commences the eternal tussle to cut down costs.

When the preliminary arrangements have been agreed to by the building owner, the architect is probably instructed either to place the work in hand with some builder of whom he has had experience or with some firm nominated by the client, or alternatively he is asked to obtain estimates for the work. In cases where the builder is nominated, either by the client or the architect, the builder would most likely be well known to them, so that a certain degree of co-operation is ensured from the commencement and the objects of the client may be kept well in view in a general endeavour to secure the best results by the means at the disposal of the parties. This seems to be a fairly good way of dealing with the business, as no one can actually foresee how the job will develop, and this system gives ample scope for modifications, extensions, or alterations in progress.

In works of considerable magnitude it is sometimes found expedient to engage a firm as supervising builders to assist in carrying out the work. The architect, of course, supplies the necessary drawings, details and specification and the commercial and practical part of the undertaking is carried out by the builders before mentioned. They would arrange the terms of the various contracts with specialists, and all difficult matters of procedure, take up all the questions and claims of surrounding properties, and generally deal with the expert technical questions which can only be dealt with by builders who have a highly qualified staff. In the alternative case the architect is instructed to obtain competitive estimates from several builders, and this is where some difficulties are likely to occur.

The relationship of architect and builder in respect of competitive contracts could be divided into four or five periods such as—when estimating and before signing the contract—the relations after signing the contract—before rendering the account, and after the account is rendered. To take the first stage above mentioned, the builder must first get an introduction either to client or architect, to be invited to tender for the work. Architects usually have a list of builders who have satisfactorily executed work for them previously, but where contracts are put to keen competition and the job placed with the lowest tenderer the chance of one builder getting a succession of jobs for one architect is somewhat remote.

Where a builder has suffered loss on one contract through an unexpected amount of detail being introduced, if he attempts to put an adequate price on the next tender he is asked for he will most likely lose the work and it will be obtained by someone who may not have had a similar experience of the architect's details.

The builder is entitled to assume that the architect and building owner have carefully considered the scheme in all its details and are satisfied that the plans and specification contain all the work they require, and it is not for the builder to assume the position of critic or supervisor of the scheme; it is in matters of this kind that difficulties are likely to occur. The builder, when reading through the documents, may find that a certain item which is ordinarily included has been omitted, and he naturally concludes that the item is not required. Sometimes, unfortunately, it turns out when the job is in progress that the architect has by some mistake overlooked a portion of the work which he considers necessary; what, therefore, shall the architect do? Shall he go to the building owner and explain the circumstances, or shall he ask the builder to do the work for nothing? Many builders may be prepared to take that extreme course, in their desire to please the architects for whom they work.

Whether quantities are supplied or not, the builder will usually wish to see the drawings, and upon applying to the architect's office may be told that the job is a very simple one and can be carried out very cheaply, and when the builder asks to see the details to verify this he often finds that the large scale drawings are not yet prepared, and he must do his best to prepare his estimate on the information available. If he particularly wants the job he will take an optimistic view of the work and presume no elaborate details will be required, and quote a low price.

In the event of his tender being accepted he signs the contract hoping that the job will be an easy one, but when the details arrive one by one he may find that the job gradually appears to be taking a more expensive form, and if the job is but a plain one on the drawings some simple line effects are introduced which increase the cost of the work enormously, with a consequent and certain loss to the builder, or if the architect wishes to have the rooms a certain size, say 19 ft. 0¾ in., and "tied up" with a few similar meticulous figures, the result will be enhanced cost. Therefore, all the data and details in draft for carrying out the work should be settled before the estimate is prepared so that the builder may know what will be expected.

Architects usually consider it an unreasonable request to be asked to produce complete drawings before the estimates are prepared as they wish to design the detail of the building as it develops before them and choose what is best to meet some incident that may arise, or perhaps the building owner would want altera-

COMPARISON OF PRICES OF BUILDING MATERIALS IN JANUARY, 1925, WITH CURRENT PRICES.

Materials	Jan. 1, 1925. £ s. d.	Jan. 1, 1926. £ s. d.	Rise. %	Fall. %
Bricks—				
Best Stocks	4 3 6	4 3 6	—	—
Flettons	2 13 3	2 13 3	—	—
Glazed	23 0 0	21 10 0	—	6.52
Thames Ballast	0 10 6	0 10 6	—	—
Thames Sand	0 14 6	0 14 6	—	—
Shingle (¾ in.)	0 12 9	0 12 9	—	—
Portland Cement	2 18 0	2 18 0	—	—
Ground Blue Lias Lime	2 4 6	2 4 6	—	—
Grey Stone Lime	2 11 9	2 11 9	—	—
Bath Stone	0 2 9½	0 2 9½	—	—
Portland Stone	0 4 4	0 4 4	—	—
Good Sound Building Timber—				
4 in. × 11 in.	32 0 0	28 0 0	—	12.50
3 in. × 11 in.	28 0 0	25 0 0	—	10.71
2 in. × 11 in.	28 0 0	25 0 0	—	10.71
3 in. × 9 in.	25 0 0	24 0 0	—	4.00
3 in. × 7 in.	23 0 0	20 0 0	—	13.44
3 in. × 4 in.	24 0 0	22 0 0	—	8.33
Slates—				
24 in. × 12in.	37 12 6	37 12 6	—	—
22 in. × 12 in.	34 0 0	34 0 0	—	—
20 in. × 10in.	25 12 6	25 12 6	—	—
16 in. × 10 in.	17 12 6	17 12 6	—	—
16 in. × 8 in.	13 15 0	13 15 0	—	—
R.S. Joists	13 10 0	12 10 0	—	7.41
Iron—				
Common Bars	13 10 0	13 0 0	—	3.70
Mild Steel Bars	12 0 0	10 0 0	—	16.66
Steel Bars	12 10 0	10 0 0	—	20.00
Cut Nails	20 10 0	19 0 0	—	7.32
Sheet Lead	54 0 0	46 10 0	—	13.88
Glass—				
15 oz. Sheet	0 0 3⅛	0 0 3⅛	—	7.41
21 oz. Sheet	0 0 5	0 0 4½	—	7.50
26 oz. Sheet	0 0 6	0 0 5⅜	—	10.42
Raw Linseed Oil	0 4 5	0 3 6	—	20.75
Turpentine	0 5 4	0 5 10	9.37	—
Ground English White Lead	60 10 0	56 15 0	—	9.20
White Lead Paint	84 15 0	77 15 0	—	8.25
Red Lead	57 0 0	53 10 0	—	6.14

tions, and so on. But the average builder would claim that it is unreasonable to expect him to tender for and quote a fixed price for work which the architect has not yet completely designed. The architect may reply that all that is needed is sufficient drawings to enable the surveyor to prepare the quantities, but rumour has it that quantities for a job were once prepared from an auctioneer's site plan and a photograph of one of the architect's buildings.

Many items may arise which can hardly be settled beforehand, such as L.C.C. requirements, light and air, questions, or perhaps frontage lines, which would need to be attended to later and may cause alterations, but the fair-minded person will agree that the building scheme should be reasonably complete and developed before it is put to tender.

It is a matter of humorous comment among many people that builders always say that they lose money on the contracts they undertake, and they marvel how builders can continue to exist. There is no doubt that with severe competition to obtain contracts the prices nowadays are cut so low that the builder cannot make a sufficiently large profit to cover the overhead charges and general undefined expenses of carrying on a building business, and consequently they often come to grief at the first serious loss unless they have a more remunerative branch to their business than that of keen competitive contracts. The builder's keenness to obtain contracts is usually because he must have some work to keep the business going and to reduce his establishment charges to a reasonable figure.

No other trade carries on its business on the lines of the contractor for competitive building work. The builder quotes a price to carry out work to detail drawings which perhaps are not prepared and to satisfy a person whom he may not know. He is not allowed to present his own account for the work, but has the account prepared by a person he may never have met, and must accept the figures given or go to law, and still the builder is supposed to make a profit every time!

One of the first questions to arise in connection with many contracts is the proposed time for completion. The building owner always requires the job to be finished at the earliest possible moment so as to reduce as far as possible the unremunerative period of construction. If it is really desired that the time for completion should be adhered to by all the parties the matter should be organised accordingly. For instance, the client should deliver the site on or before the appointed day, and the architect must supply the drawings and specification before the contract date for commencement, and details shortly after.

If the architect is instructed that he may, upon signing the contract, hand over to the contractor the contract drawings, specification, and the whole of the details in one bundle and intimate that those works are to be carried out within the contract time and that no alteration or variation will be required, there is no doubt that the time arranged for the completion, if fair and reasonable, will be complied with. It so often happens, however, that the contract drawings are relegated to the position of a friendly guide, and the whole scheme develops and is altered throughout in detail.

It is usually considered to be unreasonable to ask the architect for the details immediately the contract is signed, as up to that time the whole matter is "in the air" and undefined, and until estimates are obtained and the contract is signed the architect would not care to prepare all the required drawings for the scheme, even if he had the opportunity, with the risk of the whole of the time so spent being wasted in the event of the job not proceeding. Notwithstanding this, the builder should have all the drawings at once to be enabled to look ahead and prepare the work to his own economical advantage and arrange his business so that one job works in with another, as by this means alone is he enabled to reduce costs and show satisfactory results.

DILAPIDATIONS AND WASTE—I

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In accordance with the intention expressed in our issue of December 25, we now give the first article of the series.

DILAPIDATION.

Cowell, at the beginning of the seventeenth century, defined dilapidation as being "a wastful destroying, or letting of Building run to ruine and decay, for want of reparation." The term, as now used in law, is applicable only to such injuries to property as involve legal liabilities. The Royal Institute of British Architects as long ago as 1844 defined dilapidations as "those defects only which have arisen from neglect or misuse, it being the presumption that, at the commencement of his term, the tenant was satisfied that every part was sufficiently strong to last to its close."

Waste.

The act of causing defect to the premises is called Waste. It is an act of omission or commission by the tenant in possession, and liability therefore is created by law.

In West Ham Central Charity Board *v.* East London Waterworks Co. (1900), 1 Ch. 624, Buckley, J., said: "The best definition of waste that I have been able to find is in Lord Darcy *v.* Askwith, which is in these words: 'It is generally true that the lessee hath no power to change the nature of the thing demised; he cannot turn meadow into arable, nor stub a wood to make it pasture, nor dry up an ancient pool or piscary, nor suffer ground to be surrounded, nor decay the pale of a park, for then it ceaseth to be a park; nor he may not destroy nor drive away the stock or breed of any thing because it disherits and takes away the perpetuity of succession, as villians, fish, deer, young spring of woods, and the like; but he may better a thing in the same kind, as by digging a meadow, to make a drain or sewer to carry away water.' The test, as there laid down seems to be whether the act which the lessor says is an act of waste by the lessee is an act which alters the nature of the thing demised."

Waste is either voluntary or permissive.

Voluntary Waste.

Voluntary waste—sometimes described as malicious waste—implies doing some destruction to the premises as by pulling down part or all of them, or pulling down buildings and erecting others in lieu even though they are of greater value. Thus an improvement may be waste if it structurally alters the premises, since, in general, they must be left in the same condition which they were in when leased. Again, changing the nature of the premises, as, for instance, converting pasture land into arable land, or removing fixtures, constitutes waste. The destruction must be wilful or due to negligence. It is not waste if the premises are destroyed in the course of reasonable use and the tenant uses the property in a reasonable and proper manner having regard to the class of tenement to which they belong. See Saner *v.* Bilton (1878), 47 L.J., Ch. 247. In Hope Bros., Ltd., *v.* Cowan (1913), 2 Ch. 312 it was held, in the absence of any express stipulation to the contrary, that the lease of the upper floor of a building includes the outside of the walls thereof, and that reasonable user of the said floor entitles the lessee to place window boxes on brackets fixed into the outside wall.

A tenant is guilty of waste if he pulls down doors, windows, wainscots, or in any other way alters the material form and features of the demised premises. See North *v.* Guinan (1829), Beat. 343. It follows from this that there can be no partition of a leasehold house; for such partition would interfere with doors and walls.

Voluntary waste may be divided up into (1) Equitable waste, (2) Meliorating waste.

Equitable Waste.

Equitable waste is the creation of equity—of justice. It represents that waste which a prudent man would not do to his own property. Thus a tenant for life made unimpeachable for waste cannot, however, commit wanton destruction, such as pulling down buildings.

Meliorating Waste.

Meliorating waste is technically waste, and generally comprises changing the nature of the premises, as, for instance, in taking out a shop front and erecting another in its place. It is not waste, however, if it betters the property and no serious damage is done thereto, and no prohibitive express stipulation is broken, and it is sanctioned by the lessor. The sanction of the lessor protects the lessee from forfeiture under the lease, even if the lessee has failed to comply with a condition that he should repair the damage due to the waste.

It may, however, be said that, though in general there is no right on the part of the lessee to make such substantial alterations as would affect the form or structure of the premises, yet its appearance may be altered, and no waste committed. In Joseph *v.* London County Council (1914), 111 L. T. 276, there was a covenant not to make any alteration in the elevation of a building. An electric advertisement was erected which could be detached in a few hours. It was held that the erection was not an alteration in the building, but only in its appearance; and that the covenant was not broken.

Permissive Waste.

Permissive waste implies an omission whereby damage results to the premises, as, for instance, where houses are suffered to fall into decay.

In all cases, whatever the nature of the tenancy, the condition of the premises at the commencement of the tenancy must be considered. It is not waste to leave a building to fall down that was in a ruinous condition on the demise of the premises. See Burdett *v.* Withers (1837), 7 Ad. & El. 136.

The inevitable effects of time and weather must be considered, and the lessee is bound to see that the premises do not suffer from such effects. His obligation is to maintain the buildings in a habitable state, *i.e.*, in habitable repair.

Habitable Repair.

Habitable repair means a state of repair fit for occupation of an inhabitant. If, therefore, a tenant takes premises which are out of repair, agreeing to put the premises in habitable repair, the implication is that he is to put them in a better state of repair than when he took them over, regard being had to the state of the premises at the time of the agreement, to their situation, and to the class of persons likely to inhabit them, and he is to put them into a condition fit for a tenant to inhabit.

Repair}Where No Stipulation.

If there is no stipulation in a contract of tenancy that the tenant will repair, then, if there is a stipulation for rent, whether it be by deed, by writing, or by parol, there is implied by law that the tenant will use the demised premises in a tenant-like manner. In the case of a tenancy for years, the obligation may be further increased and the tenant held liable for committing or permitting waste. In Wedd *v.* Porter (1916), 2 K.B. 91, the Court of Appeal held that when a tenant from year to year had not entered into any other express contract with the landlord than as to rent, that the tenant was bound to keep the premises "wind and watertight," but was not liable to sustain and uphold the premises.

Wind and water-tight probably means stopping up a gap with boards or the like in a broken window or on the roof, when slates or tiles are removed by the wind. In Mickel *v.* M'Coard (1913), S.C. 896, a Scottish case, a tenant who had left a villa unoccupied for a month during the winter, and had not informed

the landlord of his absence therefrom, was held liable for damage by frost to water-pipes owing to his failing to turn off the water before he left the premises.

Where there is an express covenant to repair no implied stipulation to use the premises in a tenant-like manner arises. (See Standen *v.* Christmas 1847, 10 Q.B. 135.)

Agricultural Property.

If the demised premises consist of agricultural property the obligation in the absence of an express covenant, is to cultivate in a husband-like manner, according to the custom of the country, subject to the provisions of the Agricultural Holdings Act, 1908, and to keep the buildings wind and weather-tight, but the tenant is not liable to sustain and uphold the premises.

Liability in Case of Fire, &c.

Unless he has so contracted, a lessee is not liable for loss caused by inevitable accident, as when the house is destroyed by fire or tempest. It is provided by 14 Geo. III, c. 78, sec. 86, that "no action suit or process whatsoever shall be maintained against any person in whose house, chamber, stable, barn, or other building, or on whose estate any fire shall accidentally begin; nor shall any recompense be made by such person for any damage suffered thereby, any law, usage, or custom to the contrary notwithstanding, provided that no contract or agreement made between landlord and tenant shall be hereby defeated or made void."

Accidental fire means one not traceable to any cause, and does not include wilful fires and those caused by negligence. (See Filliter *v.* Phippard 1847, 11 Q.B., 347) and Musgrove *v.* Pandelis 1919, 1 K.B. 314.)

"DINGING" WALLS

"DINGING" is a treatment by which rough walls may be given, at small expense in labour or materials, a fairly smooth and even appearance. It is a useful expedient in cases where walls that should have been built to a fair face, have inadvertently been left rough, and are not of sufficient importance to warrant the expense of plastering, nor of raking out the joints—perhaps of cement mortar—and pointing. The wall is first well brushed down with a stiff broom, and then thoroughly wetted to satisfy the thirst which otherwise would suck all the moisture out of the mortar coating and thereby cause it to perish before it could set hard.

The mortar is applied while the wall is still wet. No attempt should be made to get a straight face; simply press hard upon the surface with a trowel so that the thickness of the coating is governed by the sizes of the largest grains of sand in the mortar. Lime mortar may be mixed with three parts of coarse sand to one part of putty lime; cement mortar is stronger, more convenient to prepare, and very little dearer because the proportion of sand can be increased. A good mixture is four parts of sand to one part of cement, and the addition of one part of putty lime to every three parts of cement will make the mortar work "fat," and therefore easier to apply.

A surprisingly large area can be covered in a short time, and to complete the work it is only necessary to brush it lightly with the tip of a cheap fibre distemper brush dipped in water. Do not scrub the surface with the brush as this will remove, or ruck up, the soft mortar; the idea is to take out the trowel marks and give the surface an even texture. If by accident the mortar is scrubbed off in any place, the damage can be overcome by flicking it with the wet brush charged by dipping the tip in the soft mortar.

Sometimes the plain surface obtained in this way is relieved by ruling straight lines in the soft mortar coating, to imitate masonry joints. If the wall is to be whitewashed it is better left plain. The imitation joint effect is obtained with a "jointer" as used for tuck pointing, or the bow handle end of a key, guided by a straightedge, as usually used for cutting off pointed joints.

L. E. W.

THE RENT ACT SUB-TENANTS

THE case of Standingford *v.* Bruce (*The Times*, December 3), raised some interesting points as to the position of sub-tenants under the Rent Act, 1920. The appellant was the owner of a house at South Norwood, which contained four rooms, including the kitchen, and which, in 1917, he had let to one, Wheeler, on a weekly tenancy of 14s. 10d. a week. Wheeler had subsequently sublet two rooms to the respondent in this case at 7s. a week. The appellant alleged that the tenancy to Wheeler had been made on the condition he was not to assign or underlet without the permission of the appellant, and that she had written a note to that effect in the rent book. But we will deal with this point hereafter. Wheeler had in May, 1924, quitted the premises, without notice, leaving the respondent in the possession of the two rooms. According to the report, as the respondent claimed the exclusive use of the kitchen, the appellant was unable to let the remaining rooms in the house, and had applied to the Court for an order for possession, which was refused. Oral evidence was not admitted as to the entry in the rent book relating to sub-letting, as the appellant had taken no steps, either to find Wheeler or to obtain the rent book which was in his possession; therefore, the County Court judge had held the respondent to be a statutory tenant to whom no notice to quit had been given by the appellant.

On appeal to the Divisional Court, the main point raised was whether under section 5, subsection (1) (*c*), the vacating of premises by a tenant without notice was equivalent to the tenant having "given notice to quit," and the Court negatived this proposition on the ground that "notice to quit" was a well-known technical expression with a well recognised meaning attached to it.

The case appears to call for one or two general observations. In the first place, the above section and paragraph only applies where notice to quit has been given and in consequence, "the landlord has contracted to sell or let the dwelling house or has taken any other steps as a result of which" "he would be seriously prejudiced if he could not obtain possession."

Hylton *v.* Heal (1921, 2 K.B. 438; *The Builder*, February 11, 1921), affords an example of such a case; but in the report of the case under consideration, no mention is made of the landlord having taken any definite step in consequence of the tenant having left. Presumably, however, this must have been the case.

Then, as to the question as to whether the tenancy had been made subject to a condition that the tenant should not assign or sublet the premises. The appellant had referred to an entry in the rent book to that effect, but failed to show that any efforts had been made to secure that document being produced in Court. In such circumstances, it was for the trial judge to decide whether or not secondary evidence could be admitted, and in the absence of proof that any steps had been taken to procure the production of the original, he naturally excluded the secondary evidence, but instead of giving judgment for the defendant he had taken the course of only non-suiting the plaintiff thus leaving it open to her to again institute her application for possession should the evidence become available. This course was approved by the Divisional Court.

It may, however, be useful to consider what would have been the effect on this case had it been proved that the tenant had sub-let in breach of the terms of his tenancy. Would the sub-tenant then be affected?

The nearest case we know to this is Chapman *v.* Hughes (*The Builder*, April 27, 1923). There the tenant had sub-let to a sub-tenant and had given him permission to carry on his business on the premises, but the agreement of tenancy provided that the premises should only be used by the tenant as a private dwelling house. The tenant's tenancy had been determined by consent and the action was taken to recover possession from his sub-tenant, and it was held under section 5, subsection (1) (*a*), that, as the tenant had broken a condition of his tenancy, this affected the statutory sub-tenancy, and possession was granted.

The words used in section ", subsection (1) (*a*), which contains some of the grounds for obtaining possession are non-payment of rent or the breaking or non-performance of any obligation of the tenancy so far as the same is consistent with the Act, so presumably under-letting without licence would fall within these words.

Tenancies Conditional on Employment.

We may also note a case reported in the same issue of *The Times*, F. Braby & Co., Ltd., *v.* Bedwell, which turned on section 5, subsection (1) (i) of the Rent Act as amended by the Act of 1923. Under this paragraph the existence of alternative accommodation shall not be a condition of an order for possession on any of the grounds specified in paragraph (d) of this subsection "where the tenant was in the employment of the landlord or a former landlord and the dwelling-house was let to him in consequence of that employment and he has ceased to be in that employment."

In this case the appellants had advertised for a "welder" to be employed in their works. There was a scarcity of houses in the neighbourhood and the appellants had purchased some houses which they let to their employees. The respondent had occupied one of these houses, but it is not stated in the report when the respondent entered into occupation, but the rent was not fixed with him until a fortnight after he had entered into possession. Subsequently, the respondent had voluntarily left the appellant's service and they were seeking to obtain possession but did not offer alternative accommodation. The county court judge had held that although but for the employment the appellants would not have let the house to the respondent, this fact was not communicated to him either at the commencement of, or at any time during, his tenancy before proceedings were instituted, and it was no part of his contract of employment and therefore the house was not let to him "in consequence of that employment." The Divisional Court upheld this judgment, holding that it must be proved that the landlord let the house because the man was in his employment and that the tenant took it for the same reason, and approved a dictum of Mr. Justice Lush in Queen's Club Gardens Estates Ltd., *v.* Bignell (1924, 1 K.B. 117; referred to on another point, *The Builder*, June 20, 1924). In that case the learned judge, speaking of the words, "in consequence of the employment" said, "What do those words mean? In my opinion they mean not that the landlord only knows, but that both the landlord and the tenant know that the premises were let to the tenant in consequence of his employment."

Proposed Municipal Buildings, Preston.

Preston Town Council propose the erection of new municipal buildings on the land between the Sessions House and the police station and the appointment as architects of Messrs. Briggs & Thornely, of Liverpool.

Archæological Discoveries at York.

We understand that several pieces of second-century Samian pottery, coins of Vespasian, a bone handle, medieval objects, and a fine specimen of a Roman drain pipe have been found on the new library site. Roman walls *in situ* have also been found in the form of a wall and two camp ovens.

Proposed Dover Harbour Extensions.

Dover Harbour Board propose to borrow £3,000,000 for extensions, including a sea wall 750 ft. long and two shipping berths 900 ft. and 700 ft. long respectively, with three lines of railways. A Bill will be introduced into Parliament next session, and these works are to be completed within fifteen years from the passing of the Act.

SOME OBSERVATIONS ON WORKMEN'S COMPENSATION

(IN CONNECTION WITH THE AMENDING ACT, 1923, I).

If the original Workmen's Compensation Act of 1897 was correctly described as affording a boon to lawyers rather than providing what was claimed to be its object, "rustic justice" to workmen, that term being understood to convey remedial legislation of a kind that could be understood by laymen, and under which justice could be obtained speedily and without legal assistance, there is already judicial authority for saying that the latest Act, the Workmen's Compensation Act, 1923, contains provisions which will prove a gilt-edged security for lawyers.

In the notice we gave of this Act on December 28, 1923, immediately before it came into force on January 1, 1924, we concluded our observations by saying that far from simplifying the law this Act complicated it and would lead to litigation, and we further observed that it would have tended to simplify matters had the Legislature in introducing this Act codified the law in this measure, that is to say, had they then incorporated its provisions in the existing Act of 1906, which, in the Act of 1923, is called the principal Act. Had this course been adopted when the Act was introduced we cannot but think that some of the difficulties which we shall touch upon in these articles would have been avoided, for, in the course of codifying the law, they would have become apparent to the draughtsman, and, in any case, the inclusion of the law in one Act would have been of the greatest assistance to those who desire to put the law in force as well as to those called upon to construe and administer it. Since the first four articles of this series were written, a Bill has been introduced by the Lord Chancellor consolidating the "Law relating to Compensation to Workmen for injuries suffered in the course of their employment," but this will be merely a consolidating Statute, the wording of the various sections being practically retained, and although this will be of assistance when it becomes law, it has not the same effect that would have been attained if in 1923 the new Act had been welded into one with the existing legislation at the time it was passed.

We have had the advantage of consulting this Bill, and we may say that the following observations contained in these articles will be found to apply equally to the Bill as they do to the law at present in force, for the Bill being only a consolidating Bill the wording of the Statutes is almost without exception retained, and the same questions will arise as to its application as have arisen in connection with the Act of 1923, for when it comes into force (which is not to be before January 1 next), it is not to apply to any case where the accident happened before January 1, 1924, the date when the Act of 1923 came into operation. The sections and schedules of the various Acts are arranged in the Bill in a manner which appears to us to make for clearness on the whole, but we are unable to refer to the clauses as numbered in the Bill as in the passage through Parliament they may be altered, and there seems no prospect of the Bill passing by the date named.

With these preliminary observations we will turn to the Workmen's Compensation Act, 1923, which we shall refer to as "the amending Act," the "principal Act" being that of 1906. The amending Act came into force January 1, 1924 (see section 31, subsection (4)), but even this statement requires explanation for by section 30 it is provided, "The provisions of sections 2 to 10 and the amendment of any scheme made in pursuance thereof shall not apply to any case where the accident happened before the commencement of this Act." This apparently means sections 2 to 10 inclusive. Mr. Willis, in his "Workmen's Compensation," so treats it, but it is to be regretted the Legislature is not more explicit.

It may clear the way if we first consider what Acts remain in force, whether amended or unamended since the passing of the Act of 1923, and this can be gathered from section 31, which provides "This Act may be cited as the Workmen's Compensation Act, 1923, and the principal Act" (that is, the Act of 1906), "the Workmen's Compensation (Anglo-French Convention) Act, 1909, the Workmen's Compensation (Illegal Employment) Act, 1918, the Workmen's Compensation (Silicosis) Act, 1918, and this Act may be cited together as the Workmen's Compensation Acts, 1906 to 1923."

These, therefore, are the Acts which remain upon the Statute Book, and section 31, subsection (2) of the Act of 1923 provides, "This Act, save as otherwise expressly provided, shall be construed as one with the principal Act and references in this Act to the principal Act shall be construed as references to that Act as amended by this Act."

The amendments contained in the Act of 1923 are so general in character and cover so many subjects it is somewhat difficult to present the effect of the legislation as a whole, but perhaps it will facilitate reference if we take the principal Act of 1906 as the framework and apply the amendments that have been made to the sections in that Act in their numerical order, but in adopting this course it will be necessary for us in considering the amendments to one section also to explain their bearing on other sections, and thus to make digressions.

Section 1, subsection (1) of the principal Act it will be remembered provides in general terms, "If in any employment personal injury by accident arising out of and in the course of the employment is caused to a workman, his employer shall, subject as hereinafter mentioned, be liable to pay compensation in accordance with the First Schedule to this Act."

These words are unamended, but nevertheless the new Act has an important bearing upon them indirectly, firstly as regards the interpretation of the expression "arising out of and in the course of the employment," and secondly as regards the First Schedule to which it refers.

Acting Contrary to Regulations.

With reference to the first point, it will be remembered that under the original Act of 1897 if the injury to a workman was attributable to his "serious and wilful misconduct" any compensation claimed in respect of that injury was to be disallowed. In the Act of 1906, section 1, subsection (2) (*c*), this provision was relaxed and serious and wilful misconduct only disqualified the allowance of compensation where the injury sustained by the workman in consequence of it did not result in death or serious and permanent disablement. A curious provision in that it relieved the employer from liability for his workman's wrongful act only when the consequences of that act to the workman were the least serious.

For some time after the passing of these Acts there was a tendency to treat any disobedience to orders as misconduct, but there was considerable divergence of opinion in the awards delivered by the arbitrators, as to establish this defence by the employer it had also to be found not only that the injury was attributable to the misconduct, but that the misconduct was serious and wilful, and the Court of Appeal for some time held this to be a question of fact in each case, and if there was any evidence to support the findings in the county courts it declined to interfere with the awards.

Rumboll *v.* Nunnery Colliery (1899, 80 L.T. 42) affords an example of this. In that case certain colliers had removed some timber which they had previously been ordered to place in position to secure the roof of a mine. The men alleged they had only done so to further their work, but the rules of the mine were that the men must obey the deputy, stop work in case it could not be continued in safety, and see that the roofs were safely timbered. The county court judge sitting as arbitrator had found the men to have been guilty of serious and wilful misconduct, and the Court of Appeal refused to disturb his finding as it was a question of fact and there was evidence to support it. We only refer to this case because it was the first decision on the point in the Court of Appeal, but many other examples could be given.

Of late years, however, it has come to be recognised that the defence of serious and wilful misconduct can only apply where the misconduct has occurred within the sphere of the workman's employment, and therefore if the disobedience to orders, statutory or otherwise, takes the man out of the sphere of his employment the question is not whether he has been guilty of serious and wilful misconduct, but whether the injury arose "out of and in the course of his employment."

This distinction is hardly made clear in some of the text books, but it certainly has been established ever since 1920 when the House of Lords in the case Bourton *v.* Beauchamp (1920, A.C. 1001; *The Builder*, June 25, 1920), which turned upon the breach of colliery regulations under the Coal Mines Act, 1911, drew attention to it. The Lord Chancellor (Lord Cave), after referring to the cases that had been decided by the House of Lords as to the limitation by statutory or other directions of the sphere of the workman's employment, put the point thus: "These decisions show that the question to be determined in each case of this character is whether the act which caused the injury arose out of and in the course of the employment or was one outside the employment altogether. If the former is the case and death or serious and permanent disablement results then under the Workmen's Compensation Act, 1906, section 1, subsection (2) (*c*) there is a right to compensation even though the injury was attributable to the serious and wilful misconduct of the worker; but if the act was wholly outside the sphere of employment, then the Act has no application and compensation cannot be awarded. . . There is a substantial difference between doing carelessly and recklessly a thing which you are employed to do, and doing a thing which you are not entitled to do at all. The former risk is undertaken by the employer in cases falling within the Statute, the latter is a peril added by the workman and not within the contemplation of the parties to the contract of employment."

Lord Atkinson put the point thus: "I think it perfectly clear that this thing which this unfortunate man did was outside the sphere of his employment, and I only wish to say in passing, what it ought to be hardly necessary to say, that wilful misconduct does not bring within the sphere of a workman's employment a work or an act which but for that misconduct would have been outside it. The provision with regard to serious and wilful misconduct has really no application until you first get the serious and wilful misconduct which has been committed inside the sphere of his employment."

The same point was again made clear by Lord Atkinson in the later case A. G. Moore *v.* Donelly (1921, A.C. 329; *The Builder*, May 27, 1921), and in that case it was also pointed out by the House of Lords that there was no distinction between a limitation imposed by statutory regulations and orders or restrictions imposed by an employer, except from the evidential point of view, *i.e.*, the question whether the latter have been brought to the knowledge of the workman and whether they have been waived.

The above brief summary of the law as it

stood before 1923 has been necessary in order that the effect of the amendment introduced by section 7 of the Act of 1923 may be discussed. That section provides "For the purposes of the principal Act an act resulting in the death or serious and permanent disablement of a workman shall be deemed to arise out of and in the course of his employment, notwithstanding that the workman was, at the time when the accident happened, acting in contravention of any statutory or other regulation applicable to his employment, or of any orders given by or on behalf of his employer, or that he was acting without instructions from his employer, if such act was done by the workman for the purposes of and in connection with his employer's trade or business."

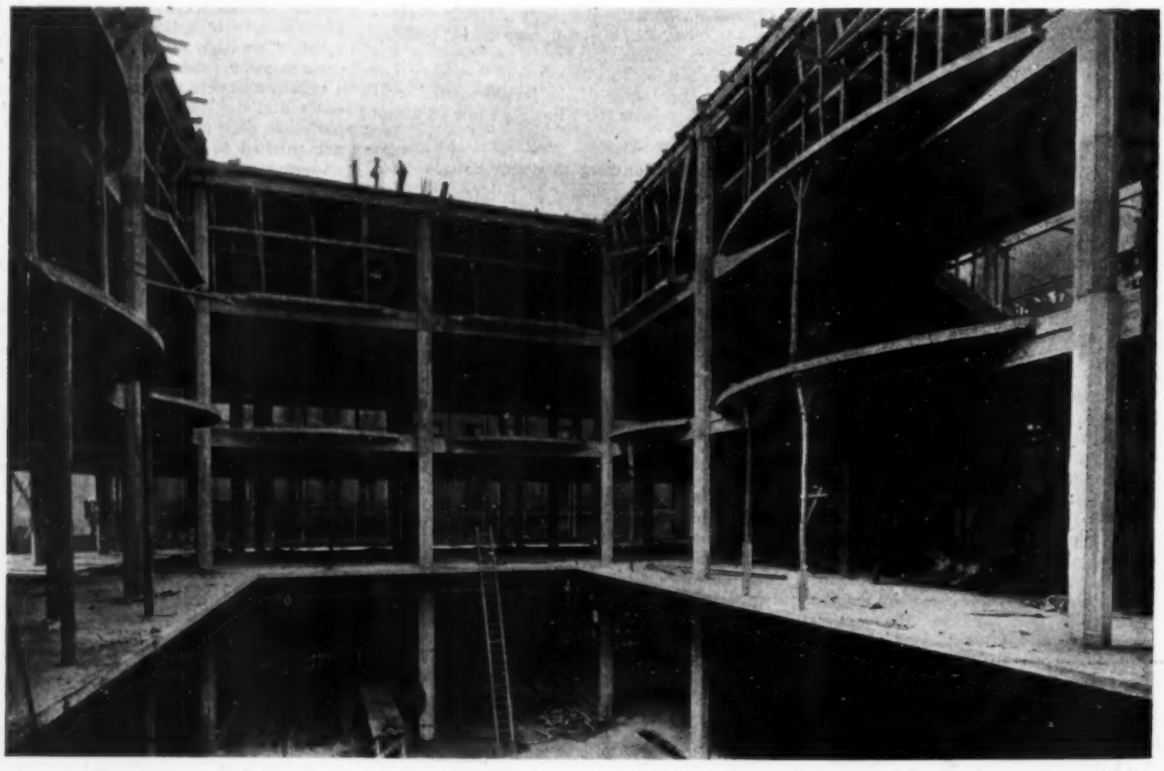
There have been two decisions of the Court of Appeal on this section—Davies *v.* Gwaun-caegurwen Colliery (1924, 2 K.B. 59; *The Builder*, April 25, 1924) and Borley *v.* Ockenden (1925, 2 K.B. 325; *The Builder*, March 27, 1925)—and in both of these the Court found the wording of the section very difficult to construe. With the above preliminary observations we must defer a detailed consideration of the section to our next article.

NEW METHOD OF FLOOR CONSTRUCTION.

One of the best-known reinforced concrete engineers in France, M. Gellusseau, has produced a remarkable new type of concrete floor in one of the large new store buildings now in course of erection in the Rue de Rivoli, Paris. The architect is M. Perret, whose work in reinforced concrete in other directions has been illustrated in *The Builder*. The new store is on a corner site, with frontages of 196 ft. and 111 ft. The space for the display of goods on the upper floor takes the form of balconies around a central hall running from the ground floor to the top of the building. The whole building is of reinforced concrete construction, with stone frontages.

The floor slabs to the balconies are 19 ft. 8 in. by 21 ft. 8 in., and are only 3½ in. thick at the centre thickening to 5½ in. at the edges. The top of the floor is, of course, flat, the difference in thickness between the centre and edges being obtained by a concave undersurface. The floors are designed for a live load of 72 lbs. per sq. ft. So far as we know, this is the thinnest floor ever built in a commercial building in relation to the span of the slabs and the loads to be carried. The design is based on the reduction of shear stress owing to the arch shape of the slabs, and also on the difference in bending moments at the centre. The reinforcement of the slabs is shown in the drawing. A further point of interest in this building is the speed with which it was carried out. With the use of rapid-hardening Portland cement, no less than 17,225 sq. ft. of floor surface were carried out in less than eigh months.

EXTERIOR VIEW.



VIEW SHOWING THIN FLOOR SLABS.

A Reinforced Concrete Store Building, Rue de Rivoli, Paris. M. PERRET, Architect. M. GELLUSSEAU, Engineer.

NEW BUILDINGS IN LONDON

Bishopsgate.—A site in Devonshire-square, E.C.4, is being cleared of old buildings by Messrs. B. Goodman, Ltd., 88, Haggerston-road, N., for the erection of new offices for the Imperial Continental Gas Association. Messrs. Trollope & Colls, Ltd., builders, 5, Coleman-street, E.C.2. Mr. W. C. Lucas, architect, 3, Buckingham-street, W.C.

Carshalton.—The Carshalton Ex-Service Men's Housing and Provident Society, Ltd., Colston-avenue, Carshalton, have bought the Byrom Orchard estate for development purposes. It is proposed to build by direct labour about 150 houses.

Caterham.—A block of 28 flats is to be erected in The Grove for occupation by the officers of the Guards' Depot War Office, architects, Whitehall, S.W.1.

Chislehurst.—It is proposed to carry out a housing scheme in the district, and to adopt a system of reinforced concrete construction for 50 dwellings. Messrs. Universal Housing Co., Ltd., builders, Rickmansworth.

Copenhagen-street.—Plans have been submitted by Messrs. Whitbread & Co., Ltd., brewers, Chiswell-street, E.C.1, for the rebuilding of the "Golden Lion" public-house, 21, Copenhagen-street, N.1. Plans by own architectural department.

Cricklewood.—Plans have been approved for a row of shop property in Walm-lane, N.W., prepared by Messrs. North, Robin & Wilsdon, F.R.I.B.A., 35-39, Maddox-street, W. 1.

Croydon.—New shops and offices are to be erected on the site of the property known as Nos. 27, 29 and 31, High-street, to plans prepared by Mr. E. Bates, architect, 27, Queen Victoria-street, E.C.4. Mr. E. H. Smith, builder, 48, Wellesley-road, Croydon.

East Ham.—A commencement is about to be made upon the building of East Ham War Memorial Hospital in Shrewsbury-road, E., an institution of 66 beds with three wards, administrative block, out-patients' department, &c. Messrs. Mennie & Smith, AA.R.I.B.A., architects, 11, New-square, Lincoln's Inn, W.C. Mr. J. Rockwood, quantity surveyor, 25, Bedford-row, W.C.1.

Edgware-road.—Messrs. T. [H. Adamson & Sons, 145, Putney High-street, S.W.5, are contractors for shops and offices in Edgware-road and Praed-street, W.2. Plans for five shops with two floors above have been prepared by Messrs. T. P. Bennett & Son, architects, Bedford-row, W.C.

Euston.—Messrs. Associated Hotels, Ltd., 57, Farringdon-road, E.C.1, have placed a contract with Messrs. Holliday & Greenwood, Ltd., builders, Stewart's-road, Battersea, S.W.8, for a new residential wing at their Northway Hotel in Euston-square, N.W.1. Messrs. Murrell & Piggott, architects, 44, Bedford-row, W.C.1.

Fenchurch-street.—A large block of premises, from Nos. 37 to 42, Fenchurch-street, E.C. 4, is about to be rebuilt by the owners, the City of London Real Property Co., Ltd. Messrs. Campbell Jones, Son & Smithers, architects, 9, Dowgate-hill, Cannon-street, E.C. 4.

Islington.—The Governors of the Northern Polytechnic Institute in Holloway-road, N.1, have approved plans for the enlargement of their buildings and equipment, at a cost exceeding £70,000. The new buildings will be erected in two sections, and have been designed by Messrs. T. P. Bennett & Son, architects, Bedford-row, W.C.1.

Kennington.—Extensive improvements, including stand, offices, lavatories, refreshment room accommodation, are to be made to the Surrey County Cricket Club's ground at The Oval, S.W.2. Messrs. Walter Lawrence & Sons, Ltd., builders, 19, Finsbury-square, E.C.2, and Messrs. William Downs, Ltd., builders, Hampton-street, S.E.17. Messrs. Redpath, Brown & Co., Ltd., steelwork, 3, Laurence Pountney-hill, Cannon-street, E.C.4. Messrs. Wimperis, Simpson & Guthrie, architects, 61, South Molton-street, W.1.

Ludgate-hill.—Large premises of five floors have been acquired by Messrs. W. Hill & Son Ltd., caterers, Old Pye-street, Westminster, S.W.1, who propose to fit up the building as a modern restaurant and confectionery shop.

Park-street.—Messrs. Wimperis, Simpson & Guthrie, architects, 61, South Molton-street, W. 1, have prepared plans for a six-floored block of self-contained residential flats in Park-street, S.W. 1.

Putney.—Building operations are in progress at St. Margaret's Church, S.W., where additions, consisting of chancel, sanctuary, north and south transepts, &c., are to be made to the design of Mr. W. H. Forsyth, F.R.I.B.A., architect (Messrs. Forsyth & Maule), 12, Stratford-place, W. 1, at a cost of £12,000. Messrs. F. G. Minter, Ltd., builders, Ferry Works, Putney, S.W.

St. Marylebone.—Messrs. Prestige & Co., Ltd., Cambridge Wharf, Grosvenor-road, S.W. 1, are contractors for new buildings at the St. Marylebone Trade School for girls, in Barrett-street, W. 2, which are to cost £35,000 to £40,000. Mr. G. Topham Forrest, F.R.I.B.A., architect.

St. Pancras.—Plans prepared by Mr. G. Topham Forrest, F.R.I.B.A., architect to the L.C.C., have been approved, providing for the remodelling, at an estimated cost of £38,500, of Brecknock Elementary School.

Shoreditch.—A block of 104 flats, or tenements, is to be built on a large site in Wenlock-road, off City-road, N. 1, as soon as the necessary contract arrangements can be made. Plans by City Engineer's Dept., Guildhall, E.C. 2.

Streatham.—Plans have been prepared by Messrs. D. Morris & Sons, Ltd., surveyors, 57, Charing Cross, S.W. 1, for a row of business premises, consisting of shops with flats above.

Surbiton.—A new factory is to be erected in Elm-road by the Stockwell Engineering Co., Ltd., Angell-road, S.W. 9, to plans prepared by Mr. A. Mason, architect, 15, Claremont-gardens, Kingston-on-Thames.

Uxbridge.—New barracks are to be erected for the Air Ministry under contract with Sir Lindsay Parkinson & Co., Ltd., Lindsay House, Shaftesbury-avenue, W.C. 2. Plans by Ministry's engineers, Adastral House, Kingsway, W.C.

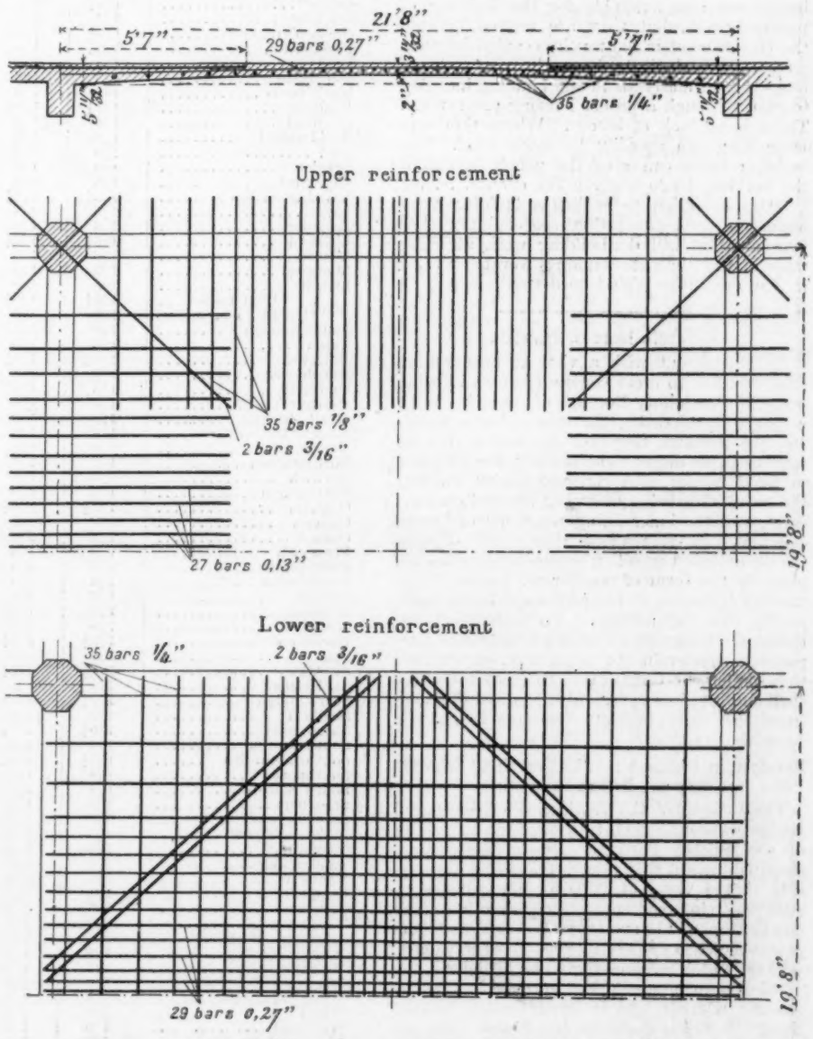
Wandsworth.—Plans have been approved for new printing works in Edgley-road, Clapham North. Messrs. F. Smith & Co. (Builders), Ltd., contractors, 9, Bush-lane, Cannon-street, E.C. 4.

Welwyn.—Mr. Louis de Soissons, F.R.I.B.A., architect to the Welwyn Garden City Company, has prepared plans for a new county council school. Accommodation will be provided for 400 scholars.

Westminster.—Large extensions are being carried out to the National Library for the Blind in Tufton-street, S.W. 1, and a building erected facing on to Great Smith-street, S.W. 1. Messrs. Higgs & Hill, Ltd., builders, Crown Works, South Lambeth-road, S.W. 6. Mr. Sydney Tatchell, F.R.I.B.A., architect, 32, Strand, W.C. 2.

Willesden.—The governors of the Willesden Hospital propose to build a new ward block. Messrs. G. Godson & Sons, builders, 215, Kilburn-lane, W. 10. Messrs. Greenaway & Newberry, architects, Parliament Mansions, Victoria-street, Westminster, S.W. 1.

Woolwich.—Plans have been prepared by the Woolwich B.C. (architect, Mr. John Sutcliffe, A.M.Inst.C.E.), for 200 houses on the housing estate at Eltham.



A Reinforced Concrete Building, Rue de Rivoli, Paris: Design of Floor Slabs.

THE WEIR HOUSES AND THE UNIONS

WE have received a copy of the reply which has been made by Mr. George Hicks (General Secretary, Amalgamated Union of Building Trade Workers) to Mr. E. Rosslyn Mitchell's defence of the Weir steel house, which appeared in *Forward* of January 2. Mr. Hicks claims that in sofar as the nation is articulate about the matter, the conclusion is unanimous—the people are "anti-steel housers." Referring to Mr. Mitchell's statement that it is necessary to turn to engineers because there is not enough labour in the building industry proper, Mr. Hicks writes: "Does he know that in the summer of 1921 there were 80,000 skilled and over 60,000 unskilled men employed on housing schemes, and that by the end of 1922 there were fewer than 20,000 of each category? Does he know that thousands of building workers have been forced to emigrate overseas, and that thousands have drifted into other industries? Does he know that the whole history of housing, as far as Britain is concerned, during and since the war has—apart from the brave attempt of John Wheatley to introduce a little intelligence and order—been one long continuous fuddle and muddle? Does he know that housing schemes have been crabbed, that the workers employed on building houses have been chased and chivvied about? . . . Does he know anything of the fickleness of Governments and Government promises? Only just recently information has been given of many brickmaking firms being unable to dispose of their bricks. These firms have been induced to extend their plant by the Government in order to produce those bricks. Those bricks are now available for the building of proper houses, but they are unused because the Government is too much occupied in stunt schemes of substitute house building. There is no lack of materials in the building industry to carry through a proper housing programme. There is no lack of labour. Where shortages occur they can speedily be made good. The building trade can give the people houses if the building trade is given the chance. . . .

"Our objection to engineers building Weir houses is not because they are engineers, but because they will do building work at lower rates of pay than the building workers receive if they do as the Weir firm desire."

Concrete Houses, Ipswich.

An experiment with a view to encouraging local builders to erect concrete houses is being made by the County Borough of Ipswich. With a view to accelerating the rate of house building, the Borough Surveyor has asked all contractors in the district whether they are prepared to build houses with concrete cavity walling, the outer skin being of strong impervious concrete, and the inner lining composed of breeze concrete. It is realised that work of this character would entail an appreciable outlay for plant in the form of shuttering, but that the number of houses to be erected would certainly justify this expenditure. Local builders are therefore being asked whether they are prepared to tender in the usual way, or whether they prefer the Corporation to erect the outer shell and division walls, and then obtain tenders from the local builders for completing the houses.

Research in Concrete: £300 Travelling Scholarship for British Students.

The Council of the Institution of Structural Engineers announce that, through the generosity of the British Portland Cement Association, they will award this year a Travelling Scholarship of the value of £300 for the purpose of studying reinforced concrete construction. The competition will be open to all associate members under the age of thirty-five years. The winner, who will also receive the Gold Medal of the Institution, will be required to travel in America for two months, and on his return to write a thesis on the lessons he has learnt from his tour. Full particulars of the Scholarship, together with the conditions of the competition, will be published in due course.

RATES OF WAGES IN THE BUILDING TRADE

Every endeavour is made to ensure accuracy, but we cannot be responsible for errors.

	Masons.	Bricklayers.	Carpenters. Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers
Aberdare	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Accrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Altrincham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ashton-under-Lyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barnsley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barrow-in-Furness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bath	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bedford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Birkenhead	1/9	1/9	1/8½	1/9	1/9	1/9	1/8½	1/4
Birmingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bishop Auckland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Blackburn	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Blackpool	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bolton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bournemouth	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bradford	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Brentwood	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bridgwater	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Brighton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bristol	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Burnley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Burton-on-Trent	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Bury	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Cambridge	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Cardiff	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chatham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Chelmsford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Cheltenham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Chester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chesterfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Colchester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Coventry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Crewe	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Darlington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Derby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Doncaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dudley	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Durham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
E. Glam. (Mon. Vall.)	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Eastbourne	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Exeter	1/7	1/7	1/7	1/7	1/7	1/7	1/6	1/2½
Folkestone	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Gloucester	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
Grantham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Grays	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/7½	1/3½
Grimsby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Great Yarmouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Guildford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Halifax	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Harrogate	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hartlepools	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hastings	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Hereford	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
Huddersfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hull	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ipswich	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Lancaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leamington Spa	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Leeds	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leicester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Lichfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Lincoln	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Liverpool	1/9	1/9	1/8½	1/9	1/9	1/9	1/8½	1/4
Llanelly	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
London (12 m. radius)	1/9½	1/9½	1/9½	1/9½	1/9½	1/9½	1/8½	1/4½
London (12–15 m. radius)	1/9	1/9	1/9	1/9	1/9	1/9	1/8	1/4
Loughborough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Luton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Maidstone	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Manchester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Mansfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Merthyr Tydfil	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Middlesbrough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Newcastle-on-Tyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Newport, Mon.	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Northampton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Norwich	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Nottingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Oakham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Oldham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Oxford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Plymouth	1/8	1/8	1/8	1/8	1/8	1/8	1/7	1/3½
Pontypridd	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Portsmouth	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Preston	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Reading	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Rochdale	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Rochester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Rugby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
St. Albans	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
St. Helens	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Scarborough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Sheffield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Shrewsbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Southampton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Southend-on-Sea	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Southport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
South Shields	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stockport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stockton-on-Tees	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stoke-on-Trent	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stroud	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5	1/1½
Sunderland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Swansea	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Swindon	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
Taunton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Torquay	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Tunbridge Wells	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Wakefield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Walsall	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Warrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
West Bromwich	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Wigan	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Windsor	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Wolverhampton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Worcester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
York	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½

(For rates of wages in the Building Trade in Scotland, see page 93.)

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, etc.

JANUARY 11.—**Croydon.**—SHOP AND DWELLING HOUSE.—Erection of upon a site known as No. 1, Longlane, Woodside, Croydon, for the County Borough Council. Borough Engineer, Town Hall. Deposit £1 1s.

JANUARY 11.—**Evenwood.**—REPAIRS. — Alterations and repairs to Low Lands Farm, Evenwood (Cockfield, L. & N.E. Rly.), for the Durham C.C. Wm. Carter, A.R.I.B.A., architect.

JANUARY 11. — **Hemel Hempstead.**—HOUSES.—Erection of 12 in pairs, at their Handpost Farm site, for the Corporation. A. Murray-Smith, A.M.Inst.C.E., Borough Surveyor, Market-square.

JANUARY 11.—**Manchester.**—GARAGE.—Garage at the Polygon Depot, Ardwick, for the T.C. H. C. Lamb, Manager, Electricity Department.

JANUARY 11.—**Newcastle-upon-Tyne.** — REPAIRS.—Repair and maintenance of houses on the Walker Estate, the Pendower Estate, and elsewhere—(1) bricklayer, drainer, concretor, carpenter and joiner, plasterer, painter and glazier, (2) plumber and electrician, (3) slater and tiler, for the T.C. Housing Architect, 18, Cloth Market.

JANUARY 11.—**Stanley.**—HOUSES.—Sixty houses on South Stanley housing estate, for the U.D.C. A. Routledge, surveyor. Deposit £2 2s.

JANUARY 12.—**Belfast.**—LIGHTING.—Installation of electric light in the R.U.C. barracks, York-road, for the Government of Northern Ireland. Secretary, Ministry of Finance, 15, Donegall-square West, Belfast.

JANUARY 12.—**Bushey.**—SEWERAGE.—Sewage pumping station and certain works at the sewage purification works, for the U.D.C. Martin & Roberts, 108, St. George's-square, Westminster, S.W. Deposit £3 3s.

JANUARY 12.—**Darton Barugh.**—HEATING.—Alterations and additions to heating installation at Darton Barugh Council School, for the West Riding E.C. Education Department. County Hall, Wakefield.

JANUARY 12.—**Fraserburgh** —ANNEXE.—New annexe to the Academy in semi-permanent construction, for the Aberdeenshire E.C. Gall & Hay, architects, 177, Union-street, Aberdeen.

JANUARY 12.—**Leeds.**—INSTITUTE.—Proposed institute for the blind, Roundhay-road, for the T.C. Education Offices (Architect's Section), Calverley-street. Deposit £2 2s.

JANUARY 12.—**London.**—ADDITIONS.—Additions and alterations to the Refuse Destructor, consisting of new cells, high-pressure water-tube boilers and auxiliary plant, for the Fulham B.C. A. F. Holden, Borough Engineer, Town Hall, Fulham, S.W.6. Deposit £5.

JANUARY 12.—**Skelmanthorpe.**—ALTERATIONS.—To Skelmanthorpe Council school, for the West Riding E.C. The Education Department, County Hall, Wakefield.

JANUARY 12.—**Skipton.**—HOUSES.—Forty houses (twelve of the parlour type and twenty-eight of the scullery type), on the Carleton-road site, for the U.D.C. A. E. W. Aldridge, Engineer and Surveyor.

JANUARY 12.—**Southall, Middlesex.**—STORMS.—Various, for annual contracts, April 1, 1926, to March 31, 1927, for the U.D.C. J. B. Thomson, Assoc.M.Inst.C.E., &c., Engineer and Surveyor, Town Hall.

JANUARY 12. — **Stoke-on-Trent.** — SUB-STATION.—Electricity sub-station building at Normacot, for the T.C. W. F. Slater, F.R.I.B.A., Architect, Overhouse Chambers, Burslem. Deposit £1 1s.

JANUARY 12.—**Thurnscoe.**—LIGHTING.—Installation of electric lighting at Thurnscoe new school, for the West Riding E.C. Education Department, County Hall, Wakefield.

JANUARY 12.—**West Derby.**—ALTERATIONS.—Alterations and external and internal painting, &c., to the relief office, 9, Crosby-road South, Waterloo, for the B.G. E. B. Bailey, L.R.I.B.A., 9, Cook-street, Liverpool.

JANUARY 12. — **Whitchurch.** — HOUSES. — Twelve houses on the Council's housing site, Evingar-road, for the R.D.C. J. T. P. Clarke, Clerk to the Council.

JANUARY 13.—**Borough.**—PAINTING.—For external and internal of the South-Eastern Parcel Office, Union-street. Contracts Branch, H.M. Office of Works, King Charles-street, S.W.1. Deposit £1 1s.

JANUARY 13. — **Brentwood (Essex).** — COW HOUSES, &c.—Alterations to the existing houses and the building of a new one and dairy buildings with lavatories, &c., in connection therewith, at the Branch Institution at Brentwood, for the Guardians. Frank R. Coles, Clerk, Hackney Union, 2, Sidney-road, E. 9. Deposit £3 3s.

JANUARY 13.—**Dewsbury.**—PAINTING.—Painting and decorating of the interior of the Courtroom, Magistrates' room, and adjoining passage in the Town Hall, for the C.B. H. Dearden, A.R.I.B.A., Borough Surveyor.

JANUARY 13.—**Essex.**—ADDITIONS AND ALTERATIONS.—On the County High School for Girls, Woodford Green, for the C.C. County Architect, Springfield Old Court, Chelmsford. Deposit £2 2s.

JANUARY 13.—**Falmouth.**—RESIDENCE.—Residence at Trescobeas-road. A. J. Cornelius, F.R.I.B.A., architect, Truro.

JANUARY 13.—**Leeds.**—BUILDING.—Bathroom and w.c. at the Children's Homes, Rothwell Haigh, for the B.G. J. H. Ford, Clerk to the Guardians, Poor Law Offices, South Parade.

JANUARY 13.—**Littlehampton.**—MUSEUM.—At the rear of the Free Library, for the U.D.C. Plans and specifications may be seen at the Surveyor's Office. A. Shelley, Clerk to the Council.

JANUARY 13.—**Rochford.**—ALTERATIONS.—Certain alterations to the kitchen, &c., at the Nurses' Home, Poor Law Institution, for the B.G. W. Harding Roberts, Clerk, 40, Clarence-street, Southend-on-Sea.

JANUARY 14.—**Antrim.**—ALTERATIONS.—To premises at Templepatrick, and also the dispensary adjoining, which are proposed to be acquired for the accommodation of the Medical Officer of the Dispensary District, for the B.G. W. D. R. Taggart, architect, Scottish Provident Buildings, Belfast.

JANUARY 14.—**Belfast.**—ADDITIONS.—Alterations and additions to new branch premises, "Hy-Niall," Falls-road, for the Munster and Leinster Bank, Ltd. Frank M'Ardle, architect and civil engineer, 29, Rosemary-street, Belfast. Deposit £2 2s.

JANUARY 14.—**Bilston.**—STATION.—Pumping station at The Bratch, Wombourn, Staffordshire, adjoining the Council's existing pumping station, about quarter-mile from Wombourn Railway Station, for the U.D.C. H. Lapworth, engineer, 25, Victoria-street, Westminster. Deposit £3.

JANUARY 14.—**Coulsdon and Purley.**—SHEDS.—Engine sheds, workshops, stores, &c., at the Council's Depot, near "Royal Oak," Brighton-road, Purley, for the U.D.C. R. Chart, Surveyor, 69, Brighton-road Purley. Deposit £5.

JANUARY 14.—**Dorchester.**—HOUSES.—Twenty-two non-parlour houses in the following parishes: (1) Maiden Newton, 12 houses; (2) Puddlehinton, four houses; (3) Tolpuddle, two houses; and (4) Winterborne Abbas, four houses, for the R.D.C. F. T. Maltby, L.R.I.B.A., Chartered Architect.

JANUARY 14.—**London.**—OFFICES.—Extension of the relief offices, Union-road, Leytonstone, E.11, for the West Ham B.G. S. M. Spoor, F.R.I.B.A., 1, Staple Inn, Holborn, W.C.1. Deposit £1.

JANUARY 14.—**South Kensington.**—PAINTING.—The external at the Victoria and Albert Museum Contracts Branch, H.M. Office of Works, King Charles-street, S.W.1. Deposit £1 1s.

JANUARY 14.— **Woolwich.** — HOUSES. — Erection of, alternatively, 100 or 200, on the housing estate at Eltham, for the Metropolitan Borough Council. John Sutcliffe, A.M.Inst.C.E., Council's Architect. Borough Engineer, Town Hall. Deposit £3 3s.

JANUARY 15.—**Godstone.**—CONVERSION. — Of the male casual ward into workshops at the Institution, Bletchingley, for the B.G. E. A. Swan, architect, Station-road West, Oxted.

JANUARY 15.—**Kilmacolm.**—EXTENSIONS.—Extensions and alterations to the Telephone Exchange, for H.M.O.W. H.M. Office of Works, 4, Dunlop-street, Glasgow. Deposit £1 1s.

JANUARY 15.—**Leeds.**—HEATING.—Low-pressure hot-water heating installation for Block 1 at the Institution, Beckett-street, for the B.G. J. H. Ford, Clerk, Poor Law Offices, 11, South Parade.

JANUARY 15.—**Thornbury.**—HOUSES.—Four houses to be erected at Tytherington, near Thornbury, for the R.D.C. F. W. Davies, surveyor, High-street.

JANUARY 16.—**Bristol.**—ALTERATIONS.—To the choir gallery at Whitfield Tabernacle, Kingswood. E. A. Bodey, Hon. Sec. to the Deacons.

JANUARY 16.—**Cowbridge.**—COTTAGE.—Caretaker's cottage at the Sewage Disposal Works, Llanharran, for the R.D.C. Thomas & Morgan & Partners, Architects and Civil Engineers, 23, Gelliwastad-road, Pontypridd.

JANUARY 16.—**Frome.**—HOUSES.—Two Buckland, 20 Writhlington, and eight Haydon, for the R.D.C. J. Ace Beynon, architect, Nunney-road.

JANUARY 16.—**Glasgow.**—PAVILION.—Construction of a recreation ground and pavilion off Maxwell-road, for the T.C. General Manager, Gas Department, 30, John-street.

JANUARY 16.—**Island of Lewis.**—EXTENSIONS.—Extensions and alterations to the Stornoway Sanatorium. Geo. Gordon & Co., architects, 6, Queensgate, Inverness.

JANUARY 16.—**Newcastle (Staffs).**—OFFICES.—Offices, showrooms and workshops for the Newcastle (Staffs) Motor Co., Ltd. A. Glyn Sherwin, Architect and Surveyor, Brunswick Chambers, Newcastle, Staffs. Deposit £2.

JANUARY 16.—**Northampton.**—HOUSES.—Eighty-five houses on the Abington Lodge Farm estate, for the T.C. A. Fidler, Borough Engineer. Deposit £5.

JANUARY 16.—**Rotherham.**—HOUSES—Seventy-two houses on Doncaster-road, Eastdene housing site, for the C.B. Chas. A. Broadhead, Architect, Devonshire House, Moorgate. Deposit £2 2s.

JANUARY 16.—**Whitley and Monkseaton.**—HEATING.—Heating the existing Council offices, Whitley Park, for the U.D.C. A. J. Rousell, Surveyor. Deposit £1 1s.

JANUARY 16.—**Winchester.**—COTTAGES.—Forty-two brick or concrete cottages at Bar End, for the T.C. City Surveyor. Deposit £2 2s.

JANUARY 18. — **Acton.** — PAINTING. — Painting and decorating to the houses on the East Acton Housing Estate, for the B.C. Borough Engineer, Municipal Offices, Acton, W.3.

JANUARY 18.—**Bakewell.** — ADDITIONS. — Isolation hospital on Monyash-road, for the Haddon District Hospital Committee. Chas. Flint, L.R.I.B.A., The Quadrant, Buxton. Deposit £2 2s

JANUARY 18. — **Bristol.** — ALTERATIONS.— In the corridor and sanitary annexe of "A" block, Stapleton Institution, for the B.G. T. H. Lamb, Clerk to the Guardians, St. Peter's Hospital.

JANUARY 18.—**Cwmbran.**—SCHOOL.—A new central school at Cwmbran, for the Monmouthshire E.C. J. Bain, F.R.I.B.A., County Hall, Newport. Deposit £2 2s.

JANUARY 18 .— **Durham.** — EXTENSION.— To St. Hild's College, Durham. Joseph Potts & Son, architects and surveyors, 57, John-street, Sunderland. Deposit £3 3s.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers—Masons', Bricklayers', Plasterers',
Aberdeen	1/8	1/8½	1/8	1/8	1/8	1/8	1/7	10½d. to 1/1
Airdrie	1/8	1/8	1/8	1/8	1/8	—	1/6½	1/3
Alexandria	1/8	1/8	1/8	1/8	1/8	1/8	—	1/2½ to 1/3½
Arbroath	1/7	1/7	1/7	1/7½	1/7	1/7	1/5½	1/1½
Ayr	1/8	1/8	1/8	1/8	1/8	1/8	1/6½	1/3
Bathgate	1/8	1/8	1/8	1/8½	1/8	1/8	1/6½	1/2 to 1/3
Blairgowrie	1/7	1/7	1/7	1/7½	1/5	1/7	1/4	10d. to 1/-
Bo'ness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Coatbridge	1/8	1/8	1/8	1/8	1/8	—	1/6½	1/3 to 1/3½
Dumbarton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dumfries	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Dundee	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Dunfermline	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Edinburgh	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Falkirk	1/7½	1/7½	1/7	1/8	1/7	1/7	1/6½	1/2½
Fort William	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Galashiels	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Glasgow	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Greenock	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/0½ to 1/3½
Hamilton	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Hawick	1/7	1/7	1/7	1/7-1/7½	1/7	1/7	1/7	1/2½
Helensburgh	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½
Inverness	1/5	—	1/5	1/4	1/5	1/5	1/4	1/- to 1/2
Kilmarnock	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Kirkcaldy	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Kirkwall	1/5	1/5	1/4	1/5	1/5	1/4	1/4	1/-
Lanark	1/8	1/8	1/8	1/9	1/8	1/8	1/6	1/0 to 1/3
Leith	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Motherwell	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Perth	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3
Stirling	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Stirlingshire (Eastern District)	1/8-1/10	1/8 1/10	1/8	1/9	1/7	1/8	1/6½	1/3½
Wishaw	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 92.

JANUARY 18.—**Norwich.**—HOUSES.—Houses on the Mile Cross estate.—Twenty-five houses designed by S. G. Livock, A.R.I.B.A.; 25 houses designed by A. F. Scott & Sons, AA.R.I.B.A.; 24 houses designed by S. J. Wearing, A.R.I.B.A., for the T.C. Respective Architects. Deposit £1.

JANUARY 18.—**Sheffield.**—STORES.—Stores, ambulance room, conveniences, &c., at Neepsend Generating Station, for the T.C. S. E. Fedden, M.I.M.E., General Manager and Engineer, Commercial-street. Deposit £2 2s.

JANUARY 18.—**Winlaton.**—REPAIRS.—Repair and restoration of Social Club, 43, Front-street, for the Committee. Steward.

JANUARY 19.—**Brighton.**—ALTERATIONS.—Alterations and additions to the Boys' and Girls' bathrooms at the Warren Farm Schools, near Brighton, for the P.C. E. Wallis Long, architect, 6, Old Steine.

JANUARY 19.—**Chesham.**—CHAPEL.—Small chapel at the Chesham Bois Burial Ground, for the Council. Kemp & How, FF.R.I.B.A., 4, Bloomsbury-square, London, W.C.1. Deposit £2 2s.

JANUARY 19.—**Clontarf.**—EXCHANGE.—Automatic Telephone Exchange at Clontarf, Co. Dublin, for the Commissioners of Public Works. J. J. Healy, Secretary, Oifig Oibreach Puibli (Office of Public Works), Baile Atha Cliath (Dublin). Deposit £1.

JANUARY 19.—**France.**—CEMETERIES.—Construction of approximately twenty-four in France, for the Imperial War Graves Commission. Contract, 1926, "Z." Secretary, Works Department, Imperial War Graves Commission, 82, Baker-street, London, W.1.

JANUARY 19.—**London.**—CONVERSION WORK.—Converting the Drill Hall, Somerset House, W.C., into a boiler house and offices for the Commissioners H.M.O.W. Contracts Branch, King Charles-street, S.W.1. Deposit £1 1s. (Cheques payable to the Commissioners.)

JANUARY 19.—**London.**—PAINTING.—External and internal of the South-Eastern District Post Office, &c., in the Borough High-street, for the H.M. Office of Works. Contracts Branch, King Charles-street, S.W.1. Deposit £1 1s. (Cheques payable to the Commissioners.)

JANUARY 20.—**Manchester.**—CLINIC.—Erection of the Newton Heath school clinic, for the E.C. P. M. Heath, Town Clerk. Deposit £1 1s.

JANUARY 20.—**Southend-on-Sea.**—SORTING OFFICE.—Erection of at Southend-on-Sea for the Commissioners H.M.O.W. Contracts Branch, King Charles-street, London, S.W.1. Deposit £1 1s. Cheques payable to the Commissioners.

JANUARY 21.—**Abergavenny.**—ALTERATIONS.—Alterations and erection of additional vagrant cells, association rooms, baths, wash-house, &c., for about 50 casuals at the Institution, Hatherleigh-place, Abergavenny, for the Abergavenny and Crickhowell Unions. B. J. Francis, architect, 5A, Monk-street. Deposit £3 3s.

JANUARY 21.—**Clydebank.**—HOUSES.—170 houses at the West Kilbowie site, for the T.C. Burgh Surveyor. Deposit £2 2s.

JANUARY 21.—**Newport.**—SUBWAY.—Extension of Thomas-street subway and other works at Newport High-street Station, for the G.W.R. Engineer. Deposit £2 2s.

JANUARY 23.—**Cardiff.**—HOUSES.—Fifty-nine houses at Ely, for the T.C. Architect. Deposit £2 2s.

JANUARY 23.—**Forehoe.**—COTTAGES.—Three pairs of cottages at Spooner-row, Wymondham, for the R.D.C. Wm. Partridge Smith, Council Offices, Wymondham. Deposit £1.

JANUARY 23.—**Hartismere.**—COTTAGES.—Brome, one pair of cottages; Gislingham, one pair of cottages; Occold, one pair of cottages; Redgrave, one pair of cottages; Wyverstone, one pair of cottages; Bacton, block of four cottages; Wortham, two pairs of cottages, for the R.D.C. B. Catchpole, Sanitary Inspector. Deposit £1 1s.

JANUARY 25.—**Kingston-upon-Thames.**—ADDITIONS.—To the Grammar School, for the T.C., Jarvis & Richards, architects, 60, Tufton-street, Westminster, S.W.1. Deposit £2 2s.

JANUARY 25.—**London.**—FLATS.—Erection of a block of flats, containing 104 tenements, at Wenlock-road, City-road, Shoreditch, for the Corporation. City Engineer, Guildhall, E.C.2. Deposit £2 2s.

JANUARY 25.—**Maltby.**—HOUSES.—For (*a*) 36 houses, 24 parlour and 12 non-parlour type; (*b*) making of roads, and (*c*) construction of sewers in connection therewith on the Hall estate, for the U.D.C. Morgan R. Jones, Engineer and Surveyor. Deposit £2 2s.

JANUARY 26.—**Bournemouth.**—SUPERSTRUCTURE.—Of the new pavilion in the Pleasure Gardens, for the C.B. Town Clerk, Town Hall, Bournemouth. Deposit £ . s.

✱JANUARY 26.—**Uxbridge.**—POST OFFICE AND TELEPHONE EXCHANGE.—Erection of, at Ruislip, for the Commissioners, H.M.O.W. Contracts Branch, King Charles-street, London, S.W.1. Deposit £1 1s. (cheques payable to the Commissioners).

JANUARY 27.—**Darenth.**—LIGHTING.—Installation of electric lighting at the training colony, Dartford, for the M.A.B. T. Cooper, M.Inst.C.E., M.I.Mech.E., Engineer-in-Chief, Office of the Board, Victoria Embankment, E.C.4. Deposit £1.

✱JANUARY 27.—**London.**—TELEPHONE EXCHANGE.—Erection of, in Bermondsey, S.E., for the Commissioners, H.M.O.W. Contracts Branch, King Charles-street, London, S.W.1. Deposit £1 1s. (cheques payable to the Commissioners).

JANUARY 27.—**Tenterden.**—LIGHTING.—Wiring the institution at Tenterden for the installation of electric light, for the B.G. J. Munn Mace, Clerk to the Guardians.

JANUARY 28.—**Richmond (Surrey).**—HEATING.—Installation of steam boiler, calorifiers, heating, hot-water supply, at the Grove-road Institution, for the B.G. T. J. R. Kiernan, Consulting Engineer, 17, Victoria-street, Westminster, S.W.1. Deposit £2 2s.

JANUARY 29.—**Chelmsford.**—HOUSES.—250 houses on the Boarded Barns estate, for the T.C. E. J. Miles, Borough Engineer. Deposit £2 2s.

JANUARY 30.—**Gosforth.**—HOUSES.—84 semi-detached houses on the Coxlodge site, for the U.D.C. G. Nelson, engineer and surveyor.

JANUARY 30.—**Sutton Coldfield.**—ALMSHOUSES.—Ten almshouses at Walmley, for the Municipal Charities. H. H. Farmer, F.R.I.B.A., Hickton, Farmer & Farmer, architects 57, Colmore-row, Birmingham.

JANUARY 31.—**Brentwood.**—ALTERATIONS.—To the existing cowhouses and the building of a new cowhouse and dairy building with lavatories, &c., in connection therewith, at the Branch Institution, for the Hackney B.C. T. Talfourd Cumming, F.R.I.B.A., of King Edward Buildings, Reading. Deposit £3 3s.

FEBRUARY 1.—**London.**—DWELLINGS.—Erection of two blocks, &c., on the Holland estate (Bell-lane area), Spitalfields, for the L.C.C. Architect to the Council, The County Hall (Room No. 3), Westminster Bridge, S.E.1. Deposit £2 to the cashier.

✱FEBRUARY 2.—**Abingdon.**—HOUSES.—Erection of thirty-six on the Boxhill Housing Estate, for the Borough Council. J. G. T. West & Son, FF.R.I.B.A., architects to the Council, Abingdon. Deposit, £2 2s.

FEBRUARY 2.—**Killarney.**—ROOMS.—Refreshment rooms at Killarney Station, for the Great Southern Railways. Company's Chief Engineer, Broadstone Station, Dublin. Deposit £1 1s.

✱FEBRUARY 2.—**Leicester.**—SCHOOL BUILDINGS.—Erection of, for 720 girls, for the City Council. F. P. Armitage, Director of Education, Town Hall. Deposit £2 2s.

FEBRUARY 8.—**Clutton.**—HOUSES.—Sixteen houses at Timsbury, for the R.D.C. Mr. Hawker, architect, Council House, Temple Cloud. Deposit £2 2s.

✱NO DATE.—**Boston, Lincs.**—OFFICE BUILDINGS.—Erection of new office buildings in reinforced concrete for the Holland County Council. W. E. Norman Webster, F.R.I.B.A., 1A, New-road, Spalding. Deposit £2 2s.

NO DATE.—**Longbenton.**—CONVENIENCE.—Sanitary convenience at Westmoor, for the U.D.C. Wm. Bean, Surveyor, Council Offices, Forest Hall.

MATERIALS, etc.

JANUARY 11.—**Bristol.**—MATERIALS.—Shingle and sand, rubble stone, broken stone and topping, bricks, slates, drain pipes, &c., for the Port Authority. Thomas A. Peace, Engineer, Chief Engineer's Office, Avonmouth Dock.

JANUARY 11.—**London.**—MATERIALS.—Various materials, including builder's materials, for the Camberwell B.C. W. Bell, Borough Engineer and Surveyor, Town Hall, Camberwell, S.E.5.

JANUARY 12.—**Birkenhead.**—PIPES.—760 tons of cast-iron pipes and 58 tons of special castings, principally 20 in. internal diameter, for the T.C. R. F. Baker, Water Engineer, 82, Balls-road. Deposit £2 2s.

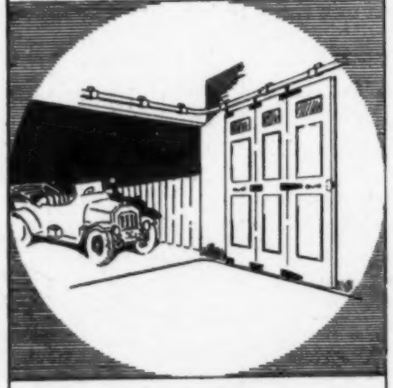
JANUARY 12.—**Manchester.**—RAILS.—Steel girder tramway rails, for the T.C. H. Mattinson, General Manager and Chief Engineer, Corporation Tramways, 55, Piccadilly.

JANUARY 14.—**Gravesend.**—TAR.—60,000 gallons of dehydrated tar, for the T.C. H. H. Brown, Town Clerk, 4, Woodville-terrace.

THE "HENDERSON" SYSTEM

SLIDING DOOR GEAR

FOR FACTORIES, GARAGES, SCHOOLS, ETC.



"TANGENT JUNIOR" FOR LIGHT DOORS.
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WRITE FOR BOUND CATALOGUE B.24 TO:

P.C. HENDERSON, LIMITED.

BARKING, ESSEX. PHONE: EAST HAM 342

JANUARY 15.—**Aberdeen.**—MATERIALS.—Cast-iron pipes, iron castings, ironmongery, plumbing materials, brass furnishings, painting materials, for the T.C. Water Engineer's Office, 41½, Union-street.

JANUARY 15.—**Derbyshire.**—MATERIALS.—Tar macadam, granite and basalt, iron furnace slag, limestone, crushed gravel, other suitable gritting material, for the C.C. J. W. Horton, County Surveyor, County Offices, St. Mary's Gate, Derby.

JANUARY 16.—**Pontefract.**—PIPES.—3,000 tons of cast-iron pipes and specials, mainly 16 in. diameter, for the T.C. W. H. Newton, Borough and Water Engineer. Deposit £3 3s.

JANUARY 18.—**Wakefield.**—PIPES.—Cast-iron pipes and special castings: 4,600 tons 22 in. pipes, 6,200 tons 20 in. pipes, for the T.C. C. Clemesha Smith, Waterworks Engineer. Deposit £2 2s.

JANUARY 19.—**Dorset.**—MATERIALS.—Tarmacadam granite, basalt, limestone, refined tar, other surface dressing material, for the C.C. W. T. Fletcher, County Surveyor, County Offices, Dorchester.

JANUARY 19.—**Dover.**—GRANITE.—1,300 tons granite chippings and siftings, 450 tons granite dust, for the T.C. Wm. Boulton Smith, Borough Engineer.

JANUARY 20.—**London.**—MATERIALS.—York paving, broken British granite, wood blocks, asphalt paving works, hoggin and ballast, and lime and cement, for the Chelsea B.C. W. R. Manning, Borough Surveyor, Town Hall, King's-road, S.W.3.

JANUARY 20.—**Manchester.**—TERRA-COTTA.—Buff terra-cotta for the Newton Heath School Clinic, for the E.C. P. M. Heath, Town Clerk. Deposit £1 1s.

JANUARY 22.—**London.**—STEELWORK.—Structural steelwork, for the South Indian Railway Co. R. White & Partners, Consulting Engineers, 3, Victoria-street, Westminster, S.W.1.

JANUARY 23.—**Essex.**—MATERIALS.—Stoneware pipes, distilled tar, broken granite, and tarred slag, for the C.C. Wm. H. Morgan, chartered civil engineer, County Surveyor, Old Court, Chelmsford.

JANUARY 23.—**Lindsey (Lincs).**—MATERIALS.—Tarred macadam, broken stone and slag, and refined tar, for the C.C. A. G. Bradshaw, County Surveyor, Newland House, Lincoln.

JANUARY 28.—**Liverpool.**—MATERIALS.—Timber, ironmongery, &c., steel sheets, wrought iron, and tiles, iron castings, oils, paints, &c., for the T.C. The General Manager, Liverpool Corporation Tramways, 24, Hatton Garden.

FEBRUARY 10.—**Middlesex.**—MATERIALS.—700 tons of 2 in. machine-broken Clee Hill granite, and ¾ in. granite chippings, 2,750 tons of clean granite chippings for tar-painting work, also for 2,750 tons tarred slag macadam, for the C.C. A. Dryland, County Engineer, County Engineer's Department, Middlesex Guildhall, Westminster, S.W.1.

ENGINEERING, IRON AND STEEL.

JANUARY 11.—**Great Yarmouth.**—WORKS.—Construction of various works in connection with the circulating water system at the Electricity Works, Southgates-road, Great Yarmouth. The work includes providing and laying 48 in. and 36 in. cast iron conduits, construction of pump well and screen chamber, &c., for the C.B. Borough Engineer. Deposit £3 3s.

JANUARY 13.—**Leeds.**—TANKS.—Detritus pits, sewage and humus tanks, sludge pump house, workshop and store; laying and jointing 21 in. diameter cast-iron pipe sewer, and 6 in. diameter sludge main effluent channels, manholes, &c., for the T.C. Geo. A. Hart, Sewerage Engineer, 8, Park-square. Deposit £5.

JANUARY 13.—**Middleton.**—CULVERT.—Construction of a proposed culvert, 234 ft. in length, over the Wince Brook, at Kirkway, for the T.C. Borough Engineer.

JANUARY 14.—**Garrant.**—SIDINGS.—Sidings at Raven Colliery, Garnant, for the Blaina and Raven Anthracite Collieries, Ltd. General Manager's Office, Gloucester House, Swansea. Deposit £5 5s.

JANUARY 20.—**Langwith.**—TANKS, &C.—Construction of detritus and screening chambers, dortmund settlement tanks, storm and humus tanks, percolating filter beds, mud drying beds, and other incidental works on the disposal site, together with the laying and jointing of sewers, as follows:—17½ tons 12 in. C.I. pipe sewers, 900 lineal yards 12 in. stoneware pipe sewers, 2,300 lineal yards 9 in. stoneware pipe sewers, 80 lineal yards 6 in. stoneware pipe sewers; also the construction of manholes and other appurtenant works, for the Bolsover U.D.C., Blackwell and Worksop R.D.C. A. H. Elliott, Chartered Engineer, Engineer to the Blackwell Rural District Council, 8, Union-street, Mansfield. Deposit £5.

ROAD, SEWERAGE, AND WATER WORKS.

JANUARY 11.—**Amersham.**—DRAIN.—Excavating for and laying about 400 yards of 12 in. surface water drain, with manholes and other incidental works, in the Market Place, Chalfont St. Peter, for the R.D.C. A. H. Prince, District Surveyor, High-street.

JANUARY 11.—**Congleton.**—REPAVING.—A portion of Mill-street with Mount Sorrel 4 in. cubes, for the T.C. W. H. Duncan Arthur, Borough Engineer and Surveyor.

JANUARY 11.—**Edinburgh.**—ROAD.—Construction of section E.F. (Starlaw to Dechmont), Contract No. 5 West, of a new road from Glasgow to Edinburgh, for the T.C. D. A. Donald, engineer, 271, Alexandra Parade, Glasgow. Deposit £3 3s.

JANUARY 11.—**Manchester.**—PAVING.—Sewering, draining, paving (with concrete), flagging (artificial flags), &c., York-street, Bradford, for the T.C. Paving, &c., Department (District Surveyor's Office), Town Hall. Deposit £1 1s.

JANUARY 11.—**Skegby.**—SEWERS.—Supplying, laying, and jointing of sewers in the parishes of Teversal and Skegby, for the R.D.C. L. Dodsley, surveyor, Portland Chambers, Sutton-in-Ashfield. Deposit £2.

JANUARY 11.—**Tendring.**—SEWERS.—Great Bentley, 616 yds. 9 in. pipe sewer; Little Clacton, 214 yds. 9 in. pipe sewer, for the R.D.C. J. E. Hall Sanitary Inspector, Public Health Office, Weeley.

JANUARY 12.—**Bromley.**—SEWERING.—Sewering, levelling, paving, metalling, channelling, and making good Salisbury-road (part), Herbert-road, Balfour-road, and Union-road (part), for the T.C. Borough Engineer. Deposit £1.

JANUARY 12.—**Chadderton.**—SEWERING.—Sewering required to be done in passages at the rear of Hardman-street, Old-lane, Marsland-street, Stanley-road, Wilton-street and Carrington-street, for the U.D.C. Surveyor.

JANUARY 12.—**Chesterfield.**—MAINS.—Laying and jointing of cast-iron water mains as follows: 5,000 yds. of 7 in. main in the parish of Eckington, and 4,202 yds. of 6 in. main in the parishes of Eckington and Killamarsh, for the R.D.C. G. Frith, Waterworks Engineer. Deposit £1 1s.

JANUARY 12.—**Heptonstall.**—WALL.—Re-building of boundary wall and drainage to school house at Heptonstall Council School, for the West Riding E.C. Education Department, County Hall, Wakefield.

JANUARY 12.—**Mitcham.**—MAKING-UP.—For (*a*) making-up of Hill-road, (*b*) making-up of Gorringe Park-avenue, (*c*) laying of artificial stone paving in various highways in the district, for the U.D.C. Surveyor, Broadway House, London-road, Lower Mitcham.

JANUARY 12.—**Northfleet.**—DRAINAGE.—Carrying out the storm water drainage of the Perry-street area, for the U.D.C. J. A. Mitchell, District Surveyor. Deposit £1 1s.

JANUARY 12.—**Willesden.**—MAKING-UP.—Of Section 3, Herbert-gardens; Section 2, Hanover-road; Section 3, Dewsbury-road; Section 2, Ellesmere-road, for the U.D.C. F. Wilkinson, Engineer, Town Hall, Dyne-road, Kilburn, N.W.6.

JANUARY 13.—**Glamorgan.**—WIDENING.—For (1) Bridgend by-pass road, widening and diversion of the Ewenny and Laleston-road between Broadlands and Pwllyplaster, Laleston; (2) widening and diversion of Waterton-lane between Coychurch and the Cardiff-Swansea main road, for the C.C. W. E. R. Allen, Deputy Clerk of the C.C., Glamorgan County Hall, Cardiff.

JANUARY 13.—**Hoo.**—WIDENING.—Widening and resurfacing of approximately 280 yds. of road, for the R.D.C. W. J. Stimpson, Surveyor. Deposit £3.

JANUARY 13.—**Leeds.**—ASPHALTING.—For (*a*) two-coat asphalte macadam surfacing of portion of the highways in Stanningley-road, Briggate; (*b*) asphalte macadam surfacing of portion of Wellington-street; (*c*) kerbing, flagging, paving and tar macadamising in Recorder-street, Oakhurst-road (part), Arley-place (part), St. Thomas-row, back Roman-grove, for the T.C. Highways and Permanent Way Engineer, 1, Swinegate, Leeds.

JANUARY 14.—**Middleton.**—KERBING.—Kerbing, channelling, ballasting, flagging footways, laying grass margins, and surfacing carriageways with tar macadam in Mount-road (No. 1 section), and High Barn-road (No. 2 section), for the T.C. Borough Engineer and Surveyor.

JANUARY 15.—**Finchley.**—IMPROVEMENTS.—To Hampstead-lane, between the Bishop's-avenue and Winnington-road, for the U.D.C. P. T. Harrison, Engineer, 9, The Hawthorns, Regent's Park-road, Finchley, N.3. Deposit £1.

JANUARY 15.—**Stratford-upon-Avon.**—SEWERS.—Approximately 1,120 lin. yds. of 9 in., approximately 1,000 lin. yds. of 12 in., approximately 1,030 lin. yds. of 15 in., approximately 1,126 lin. yds. of 18 in., and approximately 550 yds. of 24 in. outfall sewer, for the T.C. F. W. Jones, Borough Engineer. Deposit £3 3s.

JANUARY 18.—**Chesterfield.**—STREETS.—Construction of new streets on the Highfield Hall estate, including the laying of sewer and surface water drains, with manholes and all other appurtenances, for the T.C. V. Smith, Borough Engineer and Surveyor, 2, Gluman Gate.

JANUARY 18.—**Glasgow.**—SEWER.—A 6 and 9 in. pipe sewer in George-square, for the T.C. J. Lindsay, Town Clerk.

JANUARY 18.—**Whitley and Monkseaton.**—MAKING-UP.—Making-up and constructing Studley Gardens on the Marden estate, for the U.D.C. A. J. Rousell, A.M.Inst.C.E., Surveyor.

JANUARY 20.—**Kingsclere.**—WIDENING.—Widening, resurfacing and general improvement of the Kingsclere-Newbury road (a length of approximately 3¼ miles), including two small bridges, for the R.D.C. E. J. McKaig, engineer, Weston-super-Mare. Deposit £2 2s.

JANUARY 20.—**Rochdale.**—SEWER.—Construction of about 450 yards of 9 in. to 15 in. stoneware pipe sewer in Baillie-stteet, for the C.B. S. H. Morgan, Borough Engineer.

JANUARY 21.—**Kilmarnock.**—SEWERS.—For (*a*) laying of 1,094 lineal yards of water piping; (*b*) the supply and laying of 787 yards of fireclay sewers; (*c*) the excavation and bottoming of 4,426 square yards of roadway; and (*d*) other necessary works in connection with the schemes for the erection of further houses at Bonnyton and William-street, for the T.C. W. Dunbar, Burgh Surveyor, Market Bridge.

JANUARY 22.—**Folkestone.**—FENCING.—Supply of wrought and cast iron fencing and gates for new cemetery at Hawkinge, for the T.C. A. E. Nichols, Borough Engineer.

JANUARY 26.—**Gosforth.**—SEWAGE.—Extension of the existing 12 in. sewage sewer in Haddrick's Mill-road, for the U.D.C. G. Nelson, Engineer and Surveyor.

JANUARY 29.—**Hartlepool.**—RECONSTRUCTION.—Widening and reconstruction of road leading from Elwick to Naisberry-lane end, a length of approximately 1 mile, for the R.D.C. Road Surveyor, Union Offices, Hart-road, West Hartlepool. Deposit £2 2s.

JANUARY 29.—**Tadcaster.**—SEWERS.—Providing and laying about 1,225 yards of 9 in. and 542 yards of 6 in. earthenware sewers, with manholes and ventilating shafts, complete, for the R.D.C. H. M. Driver, Surveyor, Garforth, near Leeds.

JANUARY 30.—**Gosforth.**—SEWERS.—For laying new sewers and formation of roadways to complete the lay-out of the Coxlodge housing site, for the U.D.C. G. Nelson, engineer and surveyor.

JANUARY 31.—**Leyton.**—RECONSTRUCTION.—Of portions of Lea Bridge-road with reinforced concrete and granite sett paving, for the U.D.C. A. P. Howell, Engineer. Deposit £10.

FEBRUARY 2.—**Tregaron.**—EMBANKMENT.—Construction of embankment, mains, distribution, and other works in connection with the proposed water supply for the R.D.C. B. Idris Evans, Clerk.

FEBRUARY 3.—**Headington.**—DRAINAGE.—Main drainage of Headington Quarry and Littlemore, for the R.D.C. Howard Humphreys & Sons, Consulting Engineers, 28, Victoria-street, Westminster. Deposit £3 3s.

NO DATE.—**Carnarvonshire.**—WIDENING.—Widening and improving the section of the London-Holyhead road, between the Bethesda U.D.C boundary and Ogwen Lake, in the Pass of Nant Ffrancon, for the C.C. T. Owen, County Surveyor, County Offices, Carnarvon. Deposit £5 5s.

Competitions.

(*See Competition News page* 70.)

Auction Sales, Tenders, etc.

✱JANUARY 11.—**Croydon.**—Hooker & Rodgers will sell, at 44–58, Cherry Orchard-road, valuable building materials arising from demolition of houses. Auctioneers, 4, High-street, Croydon.

JANUARY 11.—**London, S.E.**—Veryard & Yates will sell, without reserve, at 367 and 369, Norwood-road, S.E., building materials arising from demolition of the residence. Auctioneers, Norwood-road, S.E.27.

✱JANUARY 13.—**Merton.**—Veryard & Yates will sell, without reserve (opposite "Six Bells" Hotel), building materials. Auctioneers, 365, Norwood-road, S.E.27.

JANUARY 21.—**Dover.**—Worsfold & Hayward will sell, in conjunction with S. Hinds & Son (unless previously disposed of by private treaty), in one lot, the freehold industrial property upon the main line of the Southern Railway, formerly known as the Stonehall Colliery. Auctioneers, W. & H. Dover, S. Hind & Son, Walmer.

✱JANUARY 28.—**Eltham.**—F. H. Clark will sell, without reserve, at Mars-avenue, Well Hall-road, S.E., timber and building materials, &c., recovered from demolition of Admiralty temporary buildings, Whitehall. Auctioneer, Mars-avenue, Well Hall-road, Eltham, Kent.

✱JANUARY 29.—**Essex.**—Fuller, Horsey, Sons & Cassell will sell, in lots, on the premises, at the Manor Brick and Tile Works, New Thundersley, near Benfleet, by order of the Administrator, brick and tile plant, also materials of the buildings. Auctioneers, 11, Billiter-square, E.C.3.

✱NO DATE.—**Berkshire.**—Knight, Frank & Rutley will sell, in conjunction with Simmons & Sons, at an early date (unless previously sold privately), on the High Ground, just outside the County Borough of Reading, gravel soil, freehold property known as the Bulmershe Estate, extending to 1,081 acres; also house, farm, cottages, &c. Auctioneers, 20, Hanover-square, W.1.

✱NO DATE.—**Dorset.**—Offers are invited for the purchase of about 9,000 cubic feet of cut Purbeck stone in South Bridge, Wareham. County Surveyor, County Offices, Dorchester, Dorset.

Public Appointments.

JANUARY 14.—**Hambledon.**—Building and Sanitary Surveyor as a whole time officer by the Hambledon R.D.C. Hugh A. Merriman, Clerk to the Council, Clerk's Office, 138, High-street, Guildford, Surrey.

JANUARY 14.—**Leicester.**—Clerk of Works required by the City of Leicester Housing Department to supervise work on the Council's Housing estates. J. S. Fyfe, A.R.I.B.A., Wyggeston House, 18, Highcross-street, Leicester.

JANUARY 14.—**Leicester.**—Quantity Surveyor required by the City of Leicester Housing and Town-Planning Committee. J. S. Fyfe, A.R.I.B.A., Wyggeston House, 18, Highcross-street, Leicester.

✱JANUARY 14.—**London, E.1.**—Architects practising in the City or County of London are invited to make applications for certain professional services which the Guardians of the Stepney Union require. S. McClelland, Clerk, Guardians' Offices, Raine-street, Wapping, E.1.

✱JANUARY 18.—**Dublin.**—Architect wanted for City Architect's Department of the Corporation. Housing Department, Lord Edward-street.

JANUARY 18.—**Newport.**—Architectural Assistant required by the County Borough Council. C. F. Ward, F.R.I.B.A., Borough Architect, Town Hall, Newport, Mon.

✱JANUARY 18.—**Walsall.**—Assistant Building Inspector in the Borough Engineer and Surveyor's Department required by the County B.C. J. Taylor, M.Inst.C.E., Borough Engineer and Surveyor, Council House.

✱JANUARY 20.—**Chelmsford.**—Assistant for the Quantity Surveyor's Office on the temporary staff required by the Essex County Council. Jno. Stuart, F.R.I.B.A., County Architect, Springfield Old Court, Chelmsford.

FEBRUARY 1.—**Yeovil.**—Clerk of Works to superintend the erection of new municipal offices, public library, and museum, at Yeovil, required by the B.C. Town Clerk.

✱FEBRUARY 10.—**Battersea, S.W.11.**—Superintendent of Building Works required to work under the Borough Engineer and Surveyor, by the Borough Council. Borough Surveyor, Town Hall.

✱NO DATE.—**Sudan.**—Foreman of Works required by the Sudan Government Railways. Advisory Engineer, Sudan Government, Wellington House, Buckingham Gate, S.W.1, marking envelope "Foreman of Works."

PROPOSED NEW BUILDINGS & OTHER WORKS*.

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B.E. for Board of Education; M.A.B. for Metropolitan Asylum Board; and M.W.B. for Metropolitan Water Board.

ALTON.—An old smithy in Nether-street is to be converted into a mission hall.—The new infirmary scheme is estimated to cost £22,300.

BARROW.—Several building sites are to be acquired by the R.D.C. The Housing Committee has reported that the district valuer has recommended the purchase of a plot of building land at Barrow-on-Soar for £310, and another plot in the same village at £213 for housing purposes. A further site of 4,486 square yards in Hawcliffe-road, Mountsorrel, has also been recommended for purchase.

BECKENHAM.—The E.C. has decided to erect a school for 400 scholars, at a cost of about £16,000, at Elmers End.—An elementary school is to be built at Witham-road, at a cost of about £12,000.—A site is to be obtained for the erection of an infants' department in connection with the Alexandra School.—The U.D.C. are negotiating for a site opposite the parish church for the erection of office accommodation. The maternity home in Croydon-road is to be enlarged.

BINGLEY.—The Building Committee approved plans for the erection of 31 houses at Cottingley.

BIRMINGHAM.—The Electric Supply Committee recommend the spending of £478,000 on various electric works, &c. The Baths Committee have purchased a site in St. George's-street, Hockley, for the erection of washhouses.

BLACK NOTLEY.—In connection with the extensions at the sanatorium the Essex C.C. has acquired land for the proposed sewage disposal works.

BLACKPOOL.—The C.B. passed plans: Forty-three houses off St. Annes-road, and 28 houses, Powell-avenue, for Edmondson & Colwell.

BOURNEMOUTH.—The T.C. passed various plans, including 13 houses, Portland-road, S. G. Ward.

BRADFORD.—The Council of the Chamber of Commerce approved plans for the erection of new headquarters, on a site now occupied by warehouses above the Westminster Bank at the bottom of Cheapside, at an estimated cost of £60,000. Mr. E. Morley prepared the plans. The Corporation has approved plans: Thirty-two houses at Highfield-road, for A. Robinson; 12 at Lodore-road, for J. Meier; 42 at Eccleshill, by A. Dickinson, at a cost of £475 each for the Corporation.

BRENTWOOD.—New County High School, for the Essex E.C., at a cost of £33,343.—The Public Health and Housing Committee recommend the building of a treatment centre at an estimated cost of £2,165.

BRIDLINGTON.—The T.C. has decided to proceed with the reconstruction scheme of the Spa on the south side of Bridlington, at an estimated cost of about £46,000.

BRIGHTON.—The M.H. has sanctioned the borrowing of, (*a*) £17,020 and £300 for the erection of 32 flats on the Moulsecoomb estate; (*b*) £8,520 for the erection of 16 houses in Hereford-street, and (*c*) £2,520 in connection with the acquisition of the Queen's Park estate.—The C.B. recommend that application be made to the M.H. for sanction to the borrowing of £100,000 to cover the cost of acquiring the properties in Western-road, North-street, and between the Town Hall and King's-road and Gloucester-place. Plans passed: 14 houses, Hollingbury-terrace, for Jas. Morley, Jun.; 16 houses, Coombe-road, for G. Ayling; 24 houses, Reigate-road, for E. B. Hayward.

BRISTOL.—The Docks Committee propose to spend £2,500 on extended shed accommodation at the City Docks (Welsh Back), for the Liverpool steamers of Messrs. Gilchrist & Co.

BURNLEY.—Extensions estimated to cost £3,500 are to be carried out at the Todmorden-road Council School.

CHELTENHAM.—The Corporation has asked the architects to prepare plans for parlour houses of a cheap system of construction, and to invite tenders for the erection of five pairs.—Plans passed: 61 houses for the Corporation.

CLACTON.—The Essex E.C. recommend the spending of £150 for land for the new secondary school.

CLAYGATE.—The electors of St. Paul's Parochial Church, East Molesey, are to consider plans for a new parish hall.

CLITHEROE.—Plans have been approved for extensions at Gisburn School.

DAGENHAM.—The Essex E.C. recommend the purchases of land at a cost of £1,130 and £625 respectively, for the erection of schools.

DUDLEY.—The Housing Committee of the Corporation has recommended the acquisition of a site at Belper-road, Darby End, for £750, for the erection of 20 houses; and also an area of land in Watson's Green-road, adjoining the existing housing site, containing over eight acres, which will permit of the erection of 124 houses.

* See also our List of Contracts, Competitions, etc.

EALING.—Plans for 62 more houses have been passed by the T.C. The houses include 25 to be erected by the Cleveland Estates in Highview-road, and 28 to be erected by W. Walkerdine in the Gunnersbury area.

EASTBOURNE.—The E.C. are to schedule 3 acres at Rodmill Farm for a site for a secondary school.—The Peoples Refreshment House Association are negotiating for a site on the Victoria-drive housing estate.—The Borough Engineer has prepared plans for houses of various types of concrete construction for the consideration of the Housing Committee.

EASTRY.—The R.D.C. has decided to apply to the M.H. for sanction to further loan of £1,000 in respect of housing.

ESSEX.—The Public Health and Housing Committee of the C.C. recommend additional beds in Sanatoria at a cost of £3,500.

FAVERSHAM.—The T.C. has recommended the Borough Surveyor to prepare and submit plans for a lavatory for both sexes, with washing accommodation, on a small scale on the old police station site.

GLASGOW.—The Rev. John J. Fleming is proposing the erection of a new church in his parish, St. Anne's. So far no architect has been appointed to prepare the plans.

GLOSSOP.—The Borough Engineer has prepared plans for a convenience at the Market, and tenders are to be invited.

GRINDLETON.—A scheme is being considered by the C.C. for the erection of a new bridge.

GUILDFORD.—Plans have been considered for 21 houses and bungalows, and an amended lay-out for Abbot's Close for Onslow Village, Ltd.—The R.D.C. has purchased a housing site at Pirbright.

HANWELL.—Middlesex E.C. has obtained sanction for a loan of £4,950 for the purchase of a site in Drayton Bridge-road for the erection of a secondary school.

HARTLEPOOL.—Messrs. J. Nimmo & Son, brewers, are to build and equip a children's ward at the Hartlepool Hospital, at a cost of £1,250.

HASTINGS.—Improvements are to be carried out at the Turkish baths at a cost of £500.—A weighbridge and office are to be provided at the destructor works at a cost of £250.

HENDON.—The U.D.C. passed plans: Fifteen houses and garages, Rundell-crescent and Allington-crescent, Hendon, Haymills, Ltd.; thirty-one houses, Booth-road, Colindale, B. A. T. Hammond; nineteen houses, Heathfield-gardens, Golders Green, Bennett & James; shops and flats on either side of Hendon Central Station, Ellis & Clarke; new chapel, Golders Green Crematorium, Done Bros.

HERNE BAY.—The U.D.C. has instructed the Surveyor to prepare plans, estimates and specifications for the erection of 60 houses of the non-parlour type, at an estimated cost of from £400 to £450.

HORNSEY.—The T.C. passed plans: Eighteen houses, at Lightfoot-road, C. W. Boswell.

HOVE.—The M.H. has held a further inquiry into the T.C.'s scheme to purchase Brooker Hall, a large mansion standing in its own grounds, for the purposes of a museum.

HUDDERSFIELD.—The Borough Architect is instructed to prepare plans for the erection of an additional 30 houses on the Quarmby housing estate.

HULL.—The Corporation are considering a scheme for the extension of Rustenberg-street by which a considerable area of building land will be opened up.—The Telephones Committee are acquiring a site on the West Hill estate for the erection of a telephone exchange.—The Corporation housing scheme provides for the erection of another 500 houses.—The Housing Committee are considering an offer by Messrs. Braithwaite & Co. to erect 50 pairs of non-parlour steel houses at £425 each, and 50 pairs of parlour-type at £485 per house.—In connection with the erection of the Francis Asker School the B.E. suggest that accommodation for 800 pupils only should be provided in the first instance.—A sub-committee are to deal with the buildings in connection with the gift by Mr. T. R. Ferens of £250,000 for the establishment of a University for Hull.—Proposals are under consideration for re-arranging the office accommodation at the Guildhall.—The City Architect has been asked to prepare sketch plans for extensions at the Central Library.

KIRKHAM.—Plans have been definitely approved of by the U.D.C. for the construction of public War Memorial by the local War Memorial Committee, at an estimated cost of £1,500. Messrs. T. Mawson & Sons, Lancaster, are advisers to the committee.

ILFORD.—The Surveyor to the U.D.C. is to proceed with the erection of a pavilion in Valentines Park.—The Surveyor is to construct a convenience at Gnats Hill Cross by direct labour, at a cost of £1,300.—A housing scheme, embracing 98 residences and 24 maisonnettes is to be carried out on the Hornsroad estate at Barkingside, for the Ilford U.D.C., to plans prepared by H. Shaw.

LANCING.—Mr. H. M. Potter, architect, has prepared plans for the Steyning West R.D.C., for the erection of a fire station on the parish hall site.

LEICESTER.—The Corporation has decided to proceed with the erection of a further 500 houses on the Park estate.—Land on the Kirby estate has been sold to the Leicester Co-operative Society for the erection of shops and houses.—The Housing Committee has completed the purchase of the Braunstone estate at a cost of £115,000.—Mr. R. Stephen Ayling, F.R.I.B.A., has prepared a scheme for the erection of abattoirs on a 5-acre site in Aylestone-road, the cost being estimated at £178,000.—A scheme for additional accommodation for mental deficients is to be prepared in association with the C.C.

LISKEARD.—The Council has adopted a building scheme embracing over 100 houses, to cost £50,000.

LIVERPOOL.—The Corporation has acquired the Norris Green estate of 460 acres and are to erect 5,520 houses to accommodate 25,000 people.

LONDON (CLAPHAM).—A scheme has been prepared for a covered market near Clapham Junction Station.

LONDON (ISLINGTON).—The B.C. recommend the rebuilding of a portion of the wall on the southern boundary of the Tyndale-place housing site. The work is estimated to cost £300. Tenders are to be invited.

LONDON (SOUTHWARK).—The Guild of Social Workers are raising funds for the erection of three additional altars in the Lady Chapel of Southwark Cathedral.

LONDON (WOOLWICH).—The B.C. recommend that the M.H. be informed that the Council accepted the loan of £6,800 for the provision of Russian and Turkish baths at Plumstead.—The Council are inviting tenders for the erection of 100 and 200 houses.—The Council recommend that application be made to the L.C.C. for sanction to borrow the sum of £55,802 for housing purposes.

MALDON.—The Public Health and Housing Committee of the Essex C.C. recommend the spending of £2,415, for the erection of a clinic.

MANCHESTER.—The T.C. passed plans: Seventy-eight houses, Hardon-grove, Tabley-grove, Handforth-grove, Shelton-grove, Old Hall-lane, Rusholme; Masonic hall and club, Bridge-street and Wood-street; twelve shops and houses, Slade-lane and Moseley-road, Rusholme; eighteen lock-up garages off Waterloo-road, Hightown.

MORECAMBE.—The T.C. has decided to erect an open-air bathing pool on the Corporation's foreshore opposite the Winter Gardens.

NEWPORT (MON).—The Corporation are to divert Malpas Brook at a cost of about £2,000.—A scheme is being considered for adapting Newport Castle as a museum.—The Borough Architect has prepared plans for a sub-station and showrooms for the electricity department at Caerleon.—Plans have been prepared for increasing the number of mechanical filters and erecting a house therefor at Pant-yr-cos, at a cost of about £5,356, and tenders are to be invited.

NEWQUAY.—A contract for the rebuilding of the Congregational Church has been accepted, the cost amounting to £4,795.

NORTHWICH.—The R.D.C. has decided to apply to the M.H. for sanction for a loan of £18,694 for the erection of 46 houses in Barnton, Moulton and Eddisbury.

NUNEATON.—The Housing and Town-Planning Committee of the T.C. recommended that application be made to the M.H. for sanction to borrow £63,869 for the erection of 144 houses on the Stockingford site.

PENRITH.—The R.D.C. are proposing to erect 50 houses.

PORTSMOUTH.—The B.G. are raising a loan of £74,000 for capital expenditure for children's homes, &c.—The Corporation are to seek authority to raise a loan of £750,000 for electricity extensions, &c.—The Borough Engineer has prepared a scheme for the widening and making-up of Copnor-road, at a cost of £64,000.—It has been decided to give the subsidy in respect of a further 300 houses.—The M.H. have sanctioned the purchase of a housing site at Stamshaw:—Plans have been prepared for a combined maternity hospital and child welfare centre at a cost of £12,000 in Fratton-road.—Plans passed: Twenty-two houses, Mayfield-road, for C. M. Searley; 46 houses, off St. Roman Bridge site, for F. J. Privett; 16 houses, Idsworth-road, for Mouncher & Son; 22 houses, Asylum-rd, for M. Berney.

RAINHAM.—The Essex E.C. recommend the building of additional classrooms at the Council school, at a cost of £3,103.

RIPON.—The Corporation are purchasing a housing site at Aismunderby at a cost of £2,900.—The West Riding Surveyor is preparing a scheme for the repair of Bishopton Bridge. The City Surveyor is to prepare a scheme for an open air swimming bath.—The Corporation are to proceed with the housing scheme at Southgate.

SALFORD.—The C.B. recommend the Improvement Committee to borrow £8,000 to cover the cost of setting back the existing boundary wall on the Hart Hill Estate.—The Council also recommend the proposal of the Health Committee to borrow the sum of £700 for the provision of a laundry at the Maternity Home and Babies' Hospital.—Applications are to be made to the M.H. for sanction to the above schemes. The C.B. has adopted the report of the Finance Committee with reference to the proposal of the Electricity Committee to borrow the sum of £132,333 to cover the cost of mains and services in Salford and Prestwich, erection and equipment of substations, provision of plant at Frederick-road Power Station, &c.

SEFTON.—Mr. E. B. Bailey has submitted to the R.D.C. block plans and sketches of the Council's housing scheme as amended.

SHEFFIELD.—The Sutton Trustees have prepared plans for the erection of 160 houses in Wadsley-lane, and new roads.

SHERINGHAM.—The M.H. is holding an inquiry into the U.D.C.'s scheme for the erection of a public hall, which is estimated to cost £9,000.

SHOEBURYNESS.—For the erection of the Richmond-avenue school, the Essex E.C. recommend the spending of £11,200 for building purposes.

SMETHWICK.—The architect presented revised plans to the Council of houses proposed to be erected on the Slatch House estate, from which it appeared that provision has been made for the erection of 206 houses. Plans had been submitted to the M.H. and generally approved. The C.B. resolved that the Borough Engineer be instructed to advertise for further tenders for the houses.—The Council recommend that the plot fronting to Coopers-lane of the Firs estate, containing approximately 4,385 sq. yd., which had been provisionally allocated for recreative purposes, should be transferred to the Harbone Charity Trustees as a site for the erection of almshouses.

SOUTHPORT.—A scheme for the roadway approaches and a bridge over the L.M.S. Railway at Blowick Station in place of the existing level crossing has been made in the town-planning scheme.

STOKE-ON-TRENT.—The Corporation have passed plans prepared by the City Surveyor for reconstruction work at the Wedgwood Institute, Burslem, at a cost of £750.—The Health Committee are considering the provision of a branch dispensary at Burslem.—Fresh tenders are to be invited for the construction of a maternity home at Hartshill.—The Housing Committee are inspecting sites at Hanford for housing schemes.—A site for a housing scheme has been obtained in Station-road, Goldenhill.—A site at Bootham has been obtained for the erection of two experimental steel houses.—Land at Acres Wood-lane, Burslem, has been purchased for a housing scheme.—Trustees of the Primitive Methodist Chapel have obtained a site in Whitehouse-road, Bucknall, for the erection of a chapel.—The City Surveyor has prepared a lay-out of land at Pittshill for housing scheme.—Proposals are to be made for the provision of greatly increased institutional accommodation for mental defectives.

STONE.—The U.D.C. has instructed the Architect to invite tenders for non-parlour type houses on the Parson's Field site.—The Postmaster-General is considering the erection of a new post office on a site in North-street.

STOURBRIDGE.—Final sketch plans for the proposed secondary school for girls to be erected by the Worcestershire E.C.

STRETFORD.—The B.E. has approved the proposals for the Open-air School at Longford Park, at an estimated cost of not more than £7,720.—Application has been made to the M.H. for preliminary consideration of a scheme for the erection of 16 houses at Nelson-street.

SWANSEA.—Twenty acres of land beyond Port Tennant has been acquired by Mr. J. Pye, contractor, for building development. The intention is to erect between 300 and 400 houses. The site is on the line of the proposed arterial road between Swansea, Port Talbot and Cardiff.

SWINDON.—The U.D.C. are to advertise for a new Sewage Disposal Works. The present site will be retained. Messrs. W. H. Radford & Son, of Nottingham, are the engineers for the scheme.

TINGLEY (YORKS).—A site has been acquired at the junction of the Tingley Cross-roads upon which it is proposed to erect a new garage and electricity stores for O. Fish.

TORQUAY.—The B.E. has sanctioned the plans for the Westhill Council School, for which a loan of £30,000 has been sanctioned.—A committee are considering the acquisition of 36 acres on the Cary estate for housing and parks purposes.—A shelter is to be provided at Ellacombe bowling green at a cost of £400.—Lloyds Bank, Ltd., have a scheme for the reconstruction of the premises of the old "Half Moon" Hotel, Union-street.

TYNEMOUTH.—The Corporation are considering the possibility of using premises in Howard-street for municipal office accommodation.—The Borough Engineer is to prepare a lay-out of the Hospital Field, Balkwell, for a housing scheme.—The M.H. has now approved the scheme for the extension of the isolation hospital at Moorpark, and tenders are to be invited.—A scheme has been prepared for the conversion of 2,500 pail closets at the rate of 100 per week.—The Cleansing Committee have been asked to consider the provision of conveniences at Cullercoats and elsewhere.—The Water Committee are considering the purchase of land at Moorhouses for the erection of a water tower.—The Corporation are negotiating for 28 acres at Cullercoats for a housing scheme. The Housing Architect has prepared plans for the erection of 14 blocks of maisonnettes and four self-contained houses at Central-avenue site.—A committee has now been appointed to draw up suggestions for improving and extending the shipping facilities and developing the resources on the Tyneside, including a suggestion that a deep water quay should be provided at Albert Edward Dock.

WAKEFIELD.—The Rev. T. C. Greenwood has submitted to the E.C. plans for alterations at St. Mary's school. The E.C. are considering the provision of more adequate accommodation for the department.—Revised plans are to be prepared for the proposed school at Sandal on lines indicated by the B.E.—A committee has been asked to report as to the adaptation of premises in King-street for municipal offices.—Approval has been given to the scheme for the erection of a wholesale warehouse on the Market estate, at a cost of £3,500.—A committee are to report in regard to the provision of new conveniences in the city.—The Housing Committee are considering the acquisition of additional housing land at Lupset.—Another 50 houses are to be built on the Portobello estate.

WALLSEND.—The Co-operative laundries are to erect a new garage at Wallsend to plans prepared by the C.W.S. Architect's Department, 90, Westmorland-road, Newcastle.

WALTON.—The U.D.C. has prepared a scheme for repairs to the sea wall at Walton-on-the-Naze, at a cost of £3,700.

WALTON-LE-DALE.—The Council have resolved to apply to the M.H. for sanction to the borrowing of £8,000 for the purpose of subsidies for the building of 100 additional houses.

WANDSWORTH.—The L.C.C. has decided to proceed with the development of the third section of the East Hill estate at Wandsworth, and the foundations of the new dwellings are to be constructed by Messrs. J. E. Billings & Co., Ltd. The expenditure involved is £13,350.

WAYLAND.—The R.D.C. has received sanction from the M.H. to a loan of £9,500 for the purchase of nine sites and the erection of 22 houses in Banham, Old Buckenham, Great Ellingham, Rocklands, Caston, Merton, Thompson, and Tottington.

YORK.—The Corporation Health Committee has approved a scheme for the erection of a 24-bed ward for children at the Fairfield Sanatorium. The M.H. is to be asked for sanction.

FIRES.

HEYWOOD.—Damage estimated at between £30,000 and £40,000 has been done by a fire at the silk mills belonging to Brearley Brothers.

SWANSEA.—Damage to the extent of £10,000 has been caused by fire at Mackworth Hotel.

TRADE NEWS

Galvanised Sheeting.

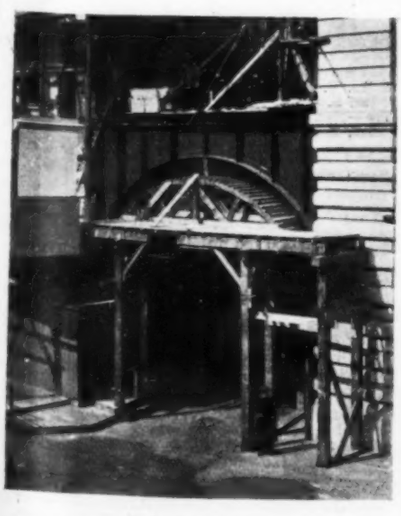
The objections to corrugated iron sheeting as a roofing material are the trouble and expense involved in fitting a skylight to this thin and comparatively unmalleable fabric. This difficulty is now eliminated by "Venteolite" galvanised corrugated sheeting, a product of Messrs. F. Braby & Co., Ltd., of Petershill-road, Glasgow, which has a patent ridged slot on top of each corrugation large enough to admit sufficient light to illuminate the room below and to allow of regular and uniform ventilation. We understand that this slot does not detract from its being weatherproof, rainproof and snowproof; there is no condensation or draught. It is especially useful for roofing such buildings as stables, lavatories, railway stations, warehouses, aerodromes and pavilions. Many users testify to its complete success, and in view of this the firm offer a small sample post free on application for inspection.

Chains.

The business of Rhodes' Chains, Ltd., has been extended to meet the many calls made by customers for various types of lighter chains, and a showroom at 26, Charing Cross-road, adjoining the firm's offices, has been opened to enable clients to inspect a wide range of driving, balancing, suspending and lifting chains. A new factory has recently been refitted with the latest machinery, to enable the firm to increase its output. The improved chains for sash hanging are a typical product of interest to architects and builders. The firm is giving equal attention to the production of the well-known cog axle and square grooved wheel pulley, the latest pattern of the patent sleeve bearing type of pulley being ample testimony of their endeavour to keep thoroughly up-to-date.

Regent-street Quadrant.

The accompanying photograph is of a steel-framed building upon the site of 3, 5 & 7, Air-street, and 74, 76 & 78, Regent-street, W.1, which forms a portion of the new Quadrant. Apart from the stanchions in the external and party walls, there are no other supports than the S.S. column which carries the ends of the main girders which support all the floors from the mezzanine to the seventh floor and the sloping roof. This column is of twin construction and sustains loads of 732 tons. The heavy and concentrated loads are conveyed to and spread upon the reinforced concrete foundations in such a manner that the sub-soil is not stressed to more than four tons per square foot.



Steel Girder over Archway in The Quadrant, Regent-street.

The illustration is of interest as showing the centering and steelwork for the masonry arch which is to span Air-street. The building is being erected by Messrs. Howard & Co., of Broad-court, Covent Garden, Bow-street, W.C., under the personal supervision of their manager, Mr. Gerald Perkins. The constructional steelwork has been supplied and erected by Messrs. Young & Co., 6, Queen Anne's-gate, S.W. 1. Messrs. William Woodward & Sons, 15, Great James-street, W.C. 1, are the architects; the general elevational design of the Quadrant being by Sir Reginald Blomfield, R.A.

A New Building Block.

We have had brought to our notice the patent Sim-Tee block, which the inventors claim embodies all the essentials of a perfect brick and none of its disadvantages. One of the disadvantages of brickwork is the number of units required in its construction, each of which has to be handled and laid separately, thus providing a large proportion of the cost of the building. This will be appreciated when one considers that a small house containing, say, five rods of brickwork, will have in the construction of its walls nearly 2,200 bricks. We are informed that the same quantity of walling erected in Sim-Tee blocks would contain only 3,625 blocks. This reduction can be better appreciated by taking an example. A bricklayer can lay these blocks at a rate of 54 per hour, which equals 454 blocks in a day of 8½ hours. As each Sim-Tee block has the bulk of six bricks, it will be seen that the latter quantity of brickwork walling would require 2,724 bricks, and in the ordinary course of events would take a bricklayer at least one week to erect. It is claimed that the block is weatherproof, strong, easily handled, simple, and quick to lay, cheap to buy, and forms walling which neither heat nor cold will penetrate. The block is of concrete (or similar material) and T-shaped on plan, and when reversed interlocks 4½ in., giving a strong bond which has the appearance of Flemish elevation. It is pointed in the ordinary way, and is lightened by four vertical cavities, open at top and bottom. This standard block is modified in various ways for stopped and returned walls. This system has been brought into operation and has, we understand, proved entirely successful.

Calendars and Blotters.

We have received calendars for the current year from Messrs. Rowe Bros. & Co., Ltd., Liverpool; W. W. Sprague & Co., Ltd., London; R. G. Spiller; City of Birmingham, Estates Department; Benjamin Ware & Sons, Ltd., Uckfield; the Architectural Association, London; Joseph Freeman, Sons & Co., Ltd., Wandsworth; Ferodo, Ltd., Chapel-en-le-Frith; the Ironite Co., Ltd., London; C. Isler & Co., Ltd., London; Rd. Johnson, Clapham & Morris, Ltd., Manchester; Messrs. Hibberd Bros., Ltd., of Vauxhall Joinery Works, 146, Vauxhall-walk, Lambeth; Messrs. J. Harrap & Son, frame manufacturers, of 3, Holborn-buildings, Holborn Bars, E.C.1; Messrs. N, Gerver, timber merchants, of 8–10, Mare-street, Hackney, E.8; and Messrs. Frank S. Mayo. flooring manufacturers, of 11, Queen Victoria-street, E.C.4. Messrs. C. P. Kinnell & Co., Ltd., heating engineers, of 65, Southwark-street, S.E.1, have sent us a very artistic block calendar; and Messrs. Lewis E. Nunn, builders, of 431, Edgware-road, W.2, have sent us another example of the producer's art in the shape of a most attractive picture on art silk. The following firms have sent us diaries or blotting-pads for use during 1926: Southern Counties Federation of Building Trades Employers; W. W. Sprague & Co., London; S. W. Newbery, London.

A Glass Door Oven.

Another noteworthy innovation for the housewife's benefit has been patented by a London firm of oven makers—the "Extasee." It consists of a heat-resisting glass door, as illustrated in the accompanying picture. The advantage of this is that the door does not need to be opened for the cooking to be inspected, thus saving a considerable waste of heat, any possible objectionable smell, the interruption of work, and as the continuous opening of the door interferes with the progress of the cooking, the food itself is better. The oven to which this is fixed possesses the latest improvements, but the firm, Messrs. Young & Marten, Ltd., can supply the glass and the necessary attachment to existing oven doors, though not in all cases; it can also be fitted to gas cookers.

The "Wyem Delight" Self-Setting Range, fitted with glass panel to oven door.

A Pocket Book.

The *Ironmonger* pocket book is now obtainable from the head offices, at 42, Cannon-street, E.C. 4, price 1s. In addition to two handy little wallets for cards, &c., the pocket book contains a careful selection of 120 tables from *Hardware Tables*. It is well compiled and exhaustively catalogued.

The Craig House.

The Craig house is the latest addition to the several houses which owe their conception to the present housing shortage, its aim being to eliminate the bricklayer and plasterer as far as possible. The only bricks required are in the chimney flue. The material used for the outer walls is "Craystone," a specially prepared synthetic stone which we understand to be entirely damp-proof. Slabs of this stone are fitted into steel, reinforced concrete or oak framing, and the walls are lined inside with "Petroma." This latter material is manufactured in slabs, and has, it is stated, the appearance and breathing power of lime plaster. No efflorescence has appeared on walls of this material, which can be painted or distempered. The floors of the house are jointless, and are laid on a bed of concrete. They are composed of granulated wood, made fireproof by a combination of plastic material; this gives a perfectly dry floor with a good surface. The tiles used are those of Messrs. D. & C. Rutter, Ltd., whose goods, according to official tests, are far stronger and less absorbent than the ordinary red quarry tile. A two-story Craig house, designed by an architect, and erected for a private owner of land near the One Mile Tree, at Kingston, has now been in use for some months, and we understand that the tenant testifies to its entire satisfaction.

PRICES CURRENT OF MATERIALS

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 3 6
Second Hard Stocks	3 18 6

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at			
King's Cross	2 13 3	Best Blue Pressed Staffs	9 5 0
Do. grooved for Plaster	2 15 3	Do. Bullnose	9 15 0
Do. Bullnose	3 8 3	Blue Wire Cuts	7 5 0
Best Stourbridge Fire Brick :—			
2½ in.	8 11 0	3 in.	10 3 0
GLAZED BRICKS—			
Best White Ivory, and Salt Glazed Stretchers	21 10 0	D'ble Str'tch'rs	30 0 0
		D'ble Headers	27 0 0
		One Side and two ends	31 0 0
Headers	21 0 0	Two Sides and one End	32 0 0
Quoins, Bullnose and 4½ in. Flats	28 0 0	S p l a y s and Squints	29 10 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS.
Delivered London.

	s. d.		s. d.
2 in. per yd. super	1 11	3 in. per yd. super	2 9
2½ in. „ „	2 4	4 in. „ „	3 6

	s. d.	
Thames Ballast	10 6	per yd.
Pit Sand	13 9	„ „
Thames Sand	14 6	„ „
Best Washed Sand	14 6	„ „
¾ in. Shingle for Ferro-Concrete	12 9	„ „
¾ in. „ „	14 0	„ „
¾ in. Broken Brick	11 6	„ „
Pan Breeze	7 6	„ „

delivered 2 miles radius Paddington.

Per ton delivered in London area in full van loads.

Best Portland Cement. British Standard Specification. Test £2 18 0 to £3 3 6 51s. alongside at Vauxhall in 80-ton lots.	
Ferrocrete per ton extra on above	0 10 6
Super Cement (Waterproof)	4 8 0
Roman Cement	8 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
„ „ Pink	5 10 0
Plaster, Coarse, Pink	3 0 0
„ „ White	3 12 6
„ Fine	5 12 0
Sirapite, Coarse	3 9 0
„ Finish	3 17 0
Grey Stone Lime	2 11 9
Chalk Lime	2 11 9
Best Ground Blue Lias Lime	2 4 6
Hair	32 0 0
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months carr. pd.

Stourbridge Fireclay in s'cks 35s. 0d. per ton at rly. dp.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 9½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	2 11½
PORTLAND STONE— Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 4
Do. do delivered on road wagons at above stations, per ft. cube	4 5
White basebed, 3d. per ft. cube extra.	
NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
HOPTON-WOOD STONE— Delivered at any Goods Station, London.	s. d.
Small random blocks, up to 10 ft. cube. P. ft. cb.	7 0
Random blocks from 10 ft. and over „	17 0
Sawn two sides „	27 0
Sawn three or four sides „	32 0
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station, London.	s. d.
6 in. sawn two sides landings to sizes (under 30 ft. super.) Per ft. super	5 6
6 in. rubbed two sides, ditto „	6 0
3 in. sawn two sides slabs (random sizes) „	2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) „	1 6½
1½ in. to 2 in. ditto, ditto „	1 4
HARD YORK— Delivered at any Goods Station, London.	
Scappled random blocks Per ft. cube	6 3
6 in. sawn two sides landing to sizes (under 40 ft. super) Per ft. super	5 1½
6 in. rubbed two sides, ditto „	6 1½
4 in. sawn two sides slabs (random sizes) „	2 10
3 in. ditto ditto „	2 1½
2 in. self-faced random flags Per yd. super	9 0

ARTIFICIAL STONE.

Delivered in London Area in full van loads, per ft. cube :—Plain, 8s. 6d. ; Moulded, 9s. 6d. Cills, 10s. 0d.

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£28 0	3 × 6	£21 0
4 × 9	25 0	3 × 11	25 0
4 × 8	24 0	2 × 11	25 0
4 × 7	23 0	3 × 9	24 0
3 × 8	21 0	2½ × 9	23 0
3 × 7	20 0	3 × 4½	22 0
2½ × 7	20 0	3 × 4	21 0

PLANED BOARDS.

1 × 11	£27 0	1 × 9	£26 0

PLAIN EDGE FLOORING.

Inches.	per sq.	Inches.	per sq.
⅝	20/-	1¼	31/-
¾	22/-	1½	34/-
1	25/-		

TONGUED AND GROOVED FLOORING.

Inches.	per sq.	Inches.	per sq.
1	25/-	⅝	16/6
1¼	31/-	¾	19/-
1½	34/-	1	24/-

MATCHING (BEST).

BATTENS.

Inches.	s. d.
4 × 2	2 6 per 100 ft.

SAWN LATHS.

Per bundle	0 2 4

1" AND UP THICK.

	£ s. d.	£ s. d.
Dry Austrian Wainscoat, per ft. cube	0 16 0	to 0 18 0
Dry American and /or Japanese Figured Oak, ft. cube	0 15 0	to —
Dry American and/or Japanese Plain Oak, ft. cube	0 11 0	to 0 13 0
Dry sq. edged Honduras Mahogany, ft. cube	0 16 0	to 0 18 0
Dry Log cut Honduras Mahogany, ft. cube	0 18 0	to 1 1 0
Dry Cuba Mahogany, ft. cube	1 4	0 to 1 10 0
Dry Teak, ft. cube	0 13	0 to 0 15 0
Dry American Whitewood, ft. cube	0 11	0 to 0 14 0
Best Scotch glue, per cwt.	4 10	0 to —
Liquid Glue, per cwt.	4 7	0 to 5 10 0

SLATES.

First quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000 of 1,200.

	£ s. d.		£ s. d.
24 by 12	37 12 6	18 by 10	21 2 6
22 by 12	34 0 0	18 by 9	18 12 6
22 by 11	31 5 0	16 by 10	17 12 6
20 by 12	29 15 0	16 by 8	13 15 0
20 by 10	25 12 6		

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	5 12 6
Ditto hand-made ditto	5 17 6
Ornamental ditto	6 2 6
Hip and valley tiles (per dozen) { Hand-made	0 9 6
Hip and valley tiles (per dozen) { Machine-made	0 9 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON—	£ s. d.
R.S. Joists, cut and fitted	12 10 0
Plain Compound Girders	14 10 0
„ Stanchions	16 10 0
In Roof Work	19 10 0

MILD STEEL ROUNDS.
To London Station, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
½ in.	12 0 0	⅝ in. to ⅞ in.	10 15 0
⅜ in.	11 0 0	1 in. to 2½ in.	10 10 0

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward if sent from London Stocks.)

	Tubes.	Fittings.	Flanges.
Black Gas	60 %	50%	60%
Galvanised Gas	45 %	40%	50%
Blue Water	55 %	45%	55%
Galvanised Water	38½ %	35%	45%
Red Steam	50 %	40%	50%
Galvanised Steam	32½ %	30%	40%

C.I. HALF-ROUND GUTTERS—London Prices, ex Works.

Per yd. in 6 ft. lengths.	Angles and Nozzles. Gutters.	Stop Ends.
3 in.	1/2½	11½d. 3½d.
3½ in.	1/4	1/0½ 3½d.
4 in.	1/5	1/2½ 3½d.
4½ in.	1/6½	1/4 4½d.
5 in.	1/9½	1/5½ 5½d.

O.G. GUTTERS.

3 in.	1/7	1/3½ 3½d.
3½ in.	1/7	1/3½ 3½d.
4 in.	1/8½	1/4 3½d.
4½ in.	1/10½	1/6½ 4½d.
5 in.	2/3	1/9½ 5½d.

RAIN-WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in. plain	1/9½	1/2½	1/8½
2½ in. „	1/11½	1/4	2/0½
3 in. „	2/4½	1/8	2/6
3½ in. „	2/10	2/-	2/10½
4 in. „	3/3	2/4½	3/6

L.C.C. COATED SOIL PIPES—London Prices, ex Works.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6 fts. plain	2 11	2 3	2 9
2½ in. „	3 5	2 6	3 5
3 in. „	4 1	2 9	4 0½
3½ in. „	4 5½	3 5	4 8½
4 in. „	4 11½	3 9½	5 5½

L.C.C. COATED DRAIN PIPES—London Prices ex Works.

	Pipe.	Bends, stocks angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
3 in. per yd. in 9 ft. lengths	4 3	5 9	7 8
4 in. „ „	6 3	6 11	9 6
5 in. „ „	7 10	12 0	16 3
6 in. „ „	9 6	15 0	20 9

Gasken for jointing, 38/6 per cwt.

	Per ton in London. £ s. d.		£ s. d.
IRON—			
Common Bars	13 0 0	to	14 10 0
Staffordshire Crown Bars—good merchant quality	14 5 0	..	15 5 0
Staffordshire "Marked Bars	16 5 0	..	17 5 0
Mild Steel Bars	10 0 0	..	11 0 0
Steel Bars, Ferro-Concrete quality, basis price	10 0 0	..	11 0 0
Hoop iron, basis price	12 0 0	..	13 0 0
„ Galvanised	27 0 0	..	28 0 0
Soft Steel Sheets, Black— Ordinary sizes to 20 g.	13 5 0	..	14 5 0
„ „ „ 24 g.	14 5 0	..	15 5 0
„ „ „ 26 g.	16 5 0	..	17 5 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 10 0	..	16 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	16 10 0	..	17 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	18 10 0	..	20 10 0
No. 1 quality £4 per ton extra.			
Flat and Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 9 ft. to 20 g.	18 10 0	..	19 10 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	19 0 0	..	20 0 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	22 0 0	..	23 0 0
Sheets Galvanised Flat. Best quality— Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	22 0 0	..	23 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	24 0 0	..	26 0 0
Best Soft Steel Sheets, 26 g.	25 10 0	..	26 10 0
Cut Nails, 3 in. to 6 in.	19 0 0	..	20 0 0
(Under 3 in. usual trade extras.)			

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

LEAD, &c.

(Delivered in London.)	£ s. d.
LEAD—Sheet, English, 4 lb. and up	47 10 0
Pipe in coils	49 0 0
Soil Pipe	51 0 0
Compo Pipe	52 0 0

NOTE—Country delivery, 30s. per ton extra ; lots under 3 cwt., 3s. per cwt. extra, and over 3 cwt. and under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills per ton	32 10 0	—
Do., ex country, carriage forward per ton	33 10 0	—

COPPER.

	per lb.	s. d.
Seamless Copper tubes (basis)		1 1
Strong sheet	„	2 3
Thin	„	2 4
Copper nails	„	2 3
Copper wire	„	2 4

PLUMBERS' BRASS WORK.
Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in	2 in.
29/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62*-	92/-	174/-	300/-	588/- per doz.

NEW RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/6	60/-	116/6 per doz.

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	11/-	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1¼ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES, S.P.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

	1¼ in.	1½ in.	2 in.	3 in.	
8 lbs. P. traps	33/-	41/-	56/-	101/-	per doz.
8 lbs. S. traps	35/-	45/-	66/-	126/-	„

TIN—English Ingots, 2/9 per lb. SOLDER—Plumbers' 1/2, Tinmen's 1/5, Blowpipe 1/6 per lb.

PAINTS, &c.

	£ s. d.
Raw Linseed Oil, in pipes per gallon	0 3 2
„ „ „ in barrels „	0 3 4
„ „ „ in drums „	0 3 7
Boiled „ „ in barrels „	0 3 7
„ „ „ in drums „	0 3 10
Turpentine in barrels „	0 - 11
„ in drums (10 gall.) „	0 6 1
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)	56 15 -
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Spedol," "Polacco," and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered	77 15 0
Red Lead, Dry (packages extra) per ton	53 10 0
Best Linseed Oil Putty per cwt.	0 15 0
Filocol „	0 15 6
Size. XD Quality „	0 3 6

Continued on next page.

*The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS (*contd.*)

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

	Per Ft.		Per Ft.
15 oz. fourths ..	3½d.	32 oz. fourths	8d.
15 „ thirds	4½d.	32 „ thirds	9½d.
21 „ fourths ..	4½d.	Obscured Sheet, 15 oz.	4d.
21 „ thirds	5½d.	„ „ 21 „	5½d.
26 „ fourths ..	5½d.	Fluted 15oz. 6½d., 21oz.	9½d.
26 „ thirds	7½d.	En'lled 15oz. 5½d., 21oz.	7½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
⅛ Rolled plate	4½d.
⅜ Rough rolled	5½d.
½ Rough rolled	5½d.
Figured Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish White..	6½d.
Ditto, tinted	9d.
Rolled Sheet	6d.
White Rolled Cathedral	5½d.
Tinted do.	7½d.

Cast Plate is same price as rough rolled.

VARNISHES, &c.

		Per Gallon. £	s.	d.
Oak Varnish	Outside	0	14	0
Fine ditto	ditto	0	16	0
Fine Copal	ditto	0	18	0
Pale Copal	ditto	1	0	0
Pale Copal Carriage	ditto	1	4	0
Best ditto	ditto	1	12	0
Floor Varnish	Inside	0	18	0
Fine Pale Paper	ditto	0	18	0
Fine Copal Cabinet	ditto	1	2	6
Fine Copal Flatting	ditto	1	0	6
Hard Drying Oak	ditto	0	18	0
Fine Hard Drying Oak	ditto	0	19	0
Fine Copal Varnish	ditto	1	0	0
Pale ditto	ditto	1	2	0
Best ditto	ditto	1	12	0
Best Japan Gold Size		0	12	6
Best Black Japan		0	10	6
Oak and Mahogany Stain (water)		0	12	0
Brunswick Black		0	7	6
Berlin Black		0	14	6
Knotting (patent)		1	5	0
French and Brush Polish		0	17	0
Liquid Dryers in Terebine		0	9	0
Cuirass Black Enamel		0	7	0

Steam Curing of Concrete Products.

The steam curing of concrete products, properly carried out, has obvious advantages, especially in enabling work to be carried on uninterruptedly throughout the winter months, regardless of outdoor temperature conditions. One necessary precaution is that the curing chamber shall be so tightly closed that circulation of air becomes impossible. If this precaution is not observed, the heated atmosphere cannot be sufficiently saturated with vapour, and consequently the moisture will evaporate too quickly from the surface of the concrete.

Another danger to avoid is that of allowing steam under pressure to enter the chamber in such a way that it will strike the green concrete. This, again, would cause too rapid an evaporation, and the concrete, instead of being properly cured, will suffer structural weakening. A good method is to admit the steam through a perforated pipe which passes through a trough of water and ensures a constant supply of steam in the chamber. Steam under a pressure of from 30 to 45 lbs. can thus be effectively used.

The position of the water troughs will depend upon the size of the chamber. According to circumstances, they may be run either across the floor or along the base of the walls. The floor should be of concrete and so graded that any condensed moisture will trickle back into the troughs for re-evaporation. It has been shown by experience that steam at 30 or 40 lbs. boiler pressure, admitted through an open trough, maintains a uniformly moist heat which ensures uniform curing. During the summer months concrete products so treated can be removed within 48 hours, and allowed to gain strength slowly under ordinary methods of protection. In winter 96 hours should be given.

Steam curing chambers usually consist of long, low, concrete-walled rooms, running parallel to each other. They should be readily separable, in order to economise steam when it is necessary to heat only a portion of the rooms. The design of the ceiling is of importance. An arched ceiling causes the moisture to drip from the middle of the arch upon the products below. Ceilings are therefore usually arranged on a saw-tooth pattern which carries condensed water to the walls and so back again to the troughs.

PATENTS.

APPLICATIONS PUBLISHED.*

239,566.—J. F. Burn and F. Hill: Slab building construction.

239,576.—H. Pearce: Process for the manufacture and hardening of concrete products.

239,587.—W. Rhodes: Stone breakers and the like disintegrating machines.

239,647.—G. E. Ralph: Roofs.

239,682.—R. Parr: Chimney cowls.

239,696.—F. H. Hall: Windows.

239,701.—E. Adamson: Castors for furniture.

239,733.—B. Paulsen: Joints for log-houses and similar structures.

230,015.—E. Ligonnet: Process for coating hollow objects made of cement.

239,765.—H. E. Pope: Building construction.

239,803.—T. W. Fisher: Folding ladder.

239,375.—J. P. Petty: Production of hollow bodies of concrete.

239,389.—J. Fowler & Co. (Leeds), Ltd., and W. J. Lewin: Stone-crushing machines.

239,414.—F. M. G. Du-Plat-Taylor: Methods of jointing and bedding building blocks.

235,134.—Deutsche Forschungs-und Versuchs-Anstalt Ges.: Process for the production of painted surfaces with metallic gloss.

228,518.—Farbenfabriken Vorm F. Bayer & Co.: Manufacture of varnishes and impregnating-media.

239,435.—R. Preston: Casting of concrete buildings in situ.

239,440.—M. G. Roglie: Apparatus for determining the value of the co-efficients and the curve of expansion taken by heat by the raw and compound materials of the ceramic art.

239,443.—H. Burger and F. Harbeck: Shuttering-clamps for concrete work.

239,448.—H. Wade (Carborundum Co.): Refractory supports for use in firing ceramic ware.

236,190.—Atlas Powder Co.: Varnishes, lacquers, and lacquer enamels.

236,206.—Caliqua Wärmeges: Meters and valve for high-pressure hot-water heating installations.

239,898.—C. J. Dew: Apparatus for extruding plastic materials.

217,241.—H. Laderer: Pipe joints.

239,908.—T. & C. Clark & Co., Ltd., and C. H. Iles: Manufacture of enamelled iron pipes and cylinders.

239,941.—W. Seltner: Apparatus for the grading or sorting of materials.

239,992.—Victualic Co., Ltd., and P. G. Johnson: Pipe joints.

240,017.—R. P. Mears: Retaining walls.

240,018.—G. W. Stokes: Metal reinforcements for concrete.

240,029.—F. C. Zeh: Window.

240,041.—S. T. Nielsen: Process for making mortar and concrete frostproof.

229,329.—F. Rauwald: Method of producing box moulds for concrete constructions.

240,935.—C. L. Burdick: Spray painting cabinets.

240,933.—H. Moreau: Central heating apparatus.

240,961.—H. L. Hewitt: Paints.

240,974.—D. Hall, J. H. Kay and Hall & Kay, Ltd.: Apparatus for humidifying and cleaning air.

241,018.—G. M. Scott: Manufacture of vitreous enamel signs and tiles.

241,034.—J. Herrmann: Concrete blocks.

241,044.—W. R. Bowker: Walls and building structures.

241,049.—C. Platte: Spigot-and-socket joints for metal pipes.

235,038.—C. Pontoppidan and H. P. Bonde: Manufacture of cement.

241,082.—J. A. Lemetais: Mixing-cocks for hot and cold water.

241,096.—G. Paul: Covering for roofs.

241,117.—G. Buddenberg: Veneering presses.

237,929.—A. G. Rotinoff: Formation of piles.

* All these applications are now in the stage in which opposition to the grant of Patents upon them may be made.

NEW COMPANIES

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 and 118, Chancery-lane, W.C.2, from the documents available at the Companies' Registry.

A. C. P. SYNDICATE, LTD. (209,746). Registered November 18. 1-3, Creechurch-lane, E.C. 3. Manufacturers of all asbestos articles, building materials, &c. Nominal capital, £2,500.

CHAS. J. BOYD, LTD. (209,748). Registered November 18. Joiners, builders, general contractors, &c. Nominal capital, £1,000.

PARKER & SHARP, LTD. (209,768). Registered November 18. Cambridge-street, York. Builders and contractors. Nominal capital, £7,000.

A. GRAHAM, SONS & CO., LTD. (209,937). Registered November 26. Springdale Works, Longroyd Bridge, Huddersfield. Public works' contractors. Nominal capital, £12,500.

DONALD G. UNDERDOWN, LTD. (210,050). Registered December 2. North Quay, Great Yarmouth. Builders, agents, contractors, &c. Nominal capital, £15,000.

JOHN WILDING, LTD. (210,111). Registered December 3. Norwich Union Chambers, Congreve-street, Birmingham. Builders, decorators, painters, &c. Nominal capital, £1,000.

HERBERT HAWKSWORTH, LTD. (210,147). Registered December 5. Builder and contractor. Nominal capital, £1,000.

BRAINTREE BUNGALOWS, LTD. (210,144). Registered December 5. Builders, contractors, &c. Nominal capital, £200.

PARKS & SON, LTD. (210,130). Registered December 4. 5, Swinegate, Grantham, Lincs. Builders and contractors. Nominal capital, £4,000.

E. BISHOP & SONS, LTD. (210,157). Registered December 5. Builders and contractors, &c. Nominal capital, £12,000.

HORWOOD & SON, LTD. (210,095). Registered December 3. 8, Queen-street, E.C. 4. Builders, decorators, contractors, &c. Nominal capital, £1,000.

T. T. DENNE, LTD. (210,352). Registered December 14. Dover-road, Upper Walmer, Kent. Builder and contractor and brickmaker. Nominal capital, £10,000.

HURST & MILLS, LTD. (210,307). Registered December 12. 185, St. John-street, E.C. 1. Builders, decorators, &c. Nominal capital, £800.

SANFITS, LTD. (210,256). Registered December 10. Builders and general merchants, &c. Nominal capital, £1,000.

TOWER & SELLICK, LTD. (210,230). Registered December 9. 6, Frith-street, Soho-square, W. 6. Decorators and contractors, &c. Nominal capital, £6,000.

JOSEPH SIMPSON & SONS, LTD. (210,228). Registered December 9. Slaters and tilers, &c. Nominal capital, £3,000.

BAILEY, SON & DICKENS, LTD. (210,224). Registered December 9. Builder and contractor. Nominal capital, £1,000.

A. PASCALL & SON, LTD. (210,502). Registered December 19. Albion Works, Down-place, Hammersmith, W. 6. Builders, decorators, &c. Nominal capital, £1,000.

H. DARE & SON, LTD. (210,540). Registered December 21. Builders, contractors, &c. Nominal capital, £1,000.

PERCIVAL HART, LTD. (210,525). Registered December 21. 711, Seven Sisters-road, Seven Sisters Corner, Tottenham, N. 15. Builders, contractors, decorators, &c. Nominal capital, £1,000.

SNETTISHAM SHINGLE CO. (1925), LTD. (210,569). Registered December 22. Shingle, gravel, stone. Nominal capital, £10,000.

T. H. SOMERVILLE & SONS, LTD. (210,475). Registered December 18. Painters and decorators, plumbers, &c. Nominal capital, £500.

CAMPBELL TILE CO., LTD. (210,464). Registered December 18. Campbell Tile Works, London-road, Stoke-on-Trent. Manufacturers of and dealers in tiles of all kinds. Nomin capital, £30,000.

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	11	0
Add if in clay	" "	1	0
Add for every additional depth of 6 ft.	" "	0	6
Planking and strutting to trenches	per foot super	0	5
Do. to sides of excavation, including shoring	" "	1	0

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	32	0
Add if in underpinning in short lengths	" "	7	0
Add if in floors 6 in. thick	" "	3	3
Add if in beams	" "	3	9
Add if aggregate 1 : 2 : 4	" "	10	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	2	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	30	0	0
Add if in stocks	"	7	10	0
Add if in Staffordshire blues	"	22	0	0
Add if in Portland cement and sand	"	1	10	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1¼

POINTING.

		s.	d.
Neat flat struck or weathered joint	" "	0	0	3

ARCHES.

		s.	d.
Extra only to the price of ordinary brickwork :—			
Fair external in half brick rings	" "	0	0	10
Axed in stocks	" "	0	1	9
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	0

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	0
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	4	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	4	3
Three-quarter-inch vertical damp course	" "	8	6
¾ inch on flats in two thicknesses	" "	6	3
Angel fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	2

MASON.

		s.	d.
York stone templates fixed	per foot cube	13	0
York stone sills fixed	" "	22	0
Bath stone and all labour fixed	" "	10	6
Portland stone fixed	" "	20	0

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72	9
Do 20 in. × 10 in. Do. Do.	"	80	9
Do. 24 in. × 12 in. Do. Do.	"	90	0

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	5	0
Do. joists	" "	5	6
Do. roofs, floors, and partitions	" "	6	0
Do. trusses	" "	8	6

	¾"	1"	1¼"	2"
Deal rough close boarding per sq.	35/6	40/-	45/-	72/-

		s.	d.
Flat centering for concrete floor, including struts or hangers "		50	0
Do. to beams per ft. sup.		1	0
Centres for arches "		1	6
Gutter boards and bearers "		1	0

FLOORING.

	¾"	1"	1¼"	1½"
Deal-edges shot per sq.		44/6	53/-	60/6
Do. tongued and grooved "		49/-	57/6	65/-
Do. matchings "	45/-	51/-		
Moulded skirting, including backings and grounds per ft. sup.	1/6	1/9	2/0	2/6

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super.	1	10
Two Do. Do. Do.	" "	2	1
Add for fitting and fixing	" "	0	3
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights; average size	" "	3	9

DOORS.

	1½"	1¾"	2"
Two-panel square framed per ft. sup.	2/1	2/4	2/6
Four-panel Do. "	2/5	2/8	2/11
Two-panel moulded both sides "	2/8	2/11	3/2
Four-panel Do. Do. "	2/11	3/2	3/5

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	14	0

	1"	1¼"	1½"
Plain deal jamb linings framed per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers "	1/4	1/6	1/9
Add if cross-tongued "	2d.	2d.	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run	0	9
Mahogany handrail: average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/-
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	16	3
Plain compound girders	"	19	0
Do. stanchions	"	21	9
In roof work	"	27	6

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/6	1/9	2/-	2/6
Ogee Do. Do.	"	1/9	2/-	2/6	3/3
Rain-water pipes with ears	"	1/9	2/7	—	—
Extra for shoes and bends	each	4/4	5/11	—	—
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	61	6
Do. Do. in flats	"	60	0
Extra labour and solder in coated cesspools	each	6	9
Welf joint	per ft. run	0	6
Soldered seam	" "	1	6
Copper nailing	" "	0	6

	½"	¾"	1"	1¼"	2"	4"
Drawn lead waste per ft. run	1/2	1/9	2/-	3/4	4/-	—
Do. service "	1/8	2/2	2/7	3/10	—	—
Do. soil "	—	—	—	—	—	6/9
Bends in lead pipe each	—	—	—	—	3/3	8/2
Soldered stop ends "	1/2	1/8	2/1	2/10	3/6	—
Red lead joints "	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints "	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws "	—	—	—	14/7	19/6	—
Bib cocks and joints "	6/4	9/7	15/4	41/-	—	—
Stop cocks and joints "	15/4	17/2	25/8	64/-	—	—

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	4
Do. Do. Sirapite	" "	2	7
Do. Do. Keen's	" "	3	7
Add sawn lathing	" "	1	7
Add metal lathing	" "	2	6
Portland cement screed	" "	2	2
Do. plain face	" "	3	3
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	5	9

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	0	8½
26 oz. Do.	" "	1	0
Obscured sheet	" "	1	1
¼ in. rolled plate	" "	0	9
¼ in. rough rolled or cast plate	" "	0	10½
¼ in. wired cast plate	" "	1	4

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	" "	0	7
Plain painting, 1 coat	" "	0	9
Do. 2 coats	" "	1	2
Do. 3 coats	" "	1	9
Do. 4 coats	" "	2	4
Graining	" "	2	3
Varnishing twice	" "	1	9
Sizing	" "	0	3
Flatting	" "	0	7
Enamel	" "	1	1
Wax polishing	per foot sup.	0	6
French polishing	" "	1	2
Preparing for and hanging paper	per piece, 2/- to 4/-		

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10 % on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TENDERS

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

* Denotes *accepted*. † Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.

ABERDEEN.—Reservoir at Hilton, for the T.C. :—
*Clark & Chapman, Aberdeen £2,976

BIRMINGHAM.—Thirty-eight parlour and 356 non-parlour type houses on the Fox Hollies estate, for the Corporation :—
*B. Whitehouse & Sons, Birmingham.

BRADFORD.—Freemasons' Hall, in Manningham-lane. Messrs. Ross & Briggs, civil engineers and architects, Eldon Chambers, 78A, Manningham-lane :—
Clearing site, foundations, and masons' work—
*C. Booth & Son.
Carpenters' and joiners' work—
*E. Fearnley & Son, Ltd.
Plasterers—
*Sugden & Co.
Steelwork—
*H. Barrett & Sons, Ltd.
(All of Bradford.)

BRIDLINGTON.—Reconstruction of the Spa, for the T.C. :—
*Holiday & Barker, Hull £38,766

BRIGHTON.—Houses on the Queen's Park estate, for the C.B. :—
‡Drever & Son ..... £500 per house

BUSHEY.—Additional dressing accommodation at the open-air swimming bath, King George recreation grounds, for the U.D.C. Mr. E. E. Ryder, surveyor :—
*A. Thornton, Bushey..... £225

CHELTENHAM.—Fifteen houses in Tewkesbury-road, for T.C. :—
*W. Drew..... £5,985

CHELTENHAM.—Two houses in Stanhope-street, for T.C. :—
*W. Drew £839

CHELTENHAM.—Diverting the River Chelt and laying out land, for T.C. :—
*Wickson's Nurseries, Ltd.—
Diverting river £9,827 14
Laying out land 3,999 0

DONCASTER.—132 houses on the Balby site, for the T.C. :—
*W. & A. Forsdyke, Ltd., Sheffield.. £59,937

EAST PRESTON.—Houses, for the R.D.C. :—
‡G. E. Lillie (Rustington), 12 at Angmering £6,540
‡Mills & Jeffries (Durrington), 12 at Durrington 6,150
‡G. L. Doddington & Co., eight at East Preston 4,032
‡H. W. Hearne (Littlehampton), eight at Poling and Warning Camp.... 4,175

EDINBURGH.—Construction of Section G.H.J. Broxburn to Newbridge of a new road from Glasgow to Edinburgh, for the T.C. Mr. D. A. Donald, engineer, 271, Alexandra-parade, Glasgow :—
*Murdoch Mackenzie, Ltd., Motherwell £62,731 18 6

GUILDFORD.—New doors at the fire station, for the T.C. :—
Tribe & Robinson..... £229
Wood & Son..... 219
Swayne & Son 192
‡— Billimore 169

HALIFAX.—Converting to the water carriage system 31 closets at various properties in the Salterhebble district, for the C.B. :—
*Mitchell & Mitchell, Halifax.

HALIFAX.—Branch library at Skircoat, for the T.C. :—
Plumbers and Glaziers—
*T. Boocock & Sons £128 10 6
Carpenters and Joiners—
*F. Pulman & Son..... 198 9 6
Plasterers and Slaters—
*S. Barrett & Son 145 0 0
Masons—
*Crossley & Radcliffe 986 18 6

HULL.—Timber repairs at Victoria pier, for T.C. :—
*Brown's Shipping & Dry Dock Co., Ltd..... £268 18

HULL.—Two iron tramway shelters, for the T.C. :—
*D. Rowell & Co., Ltd., London.... each £156

HULL.—Cooling towers and pipe work at generating station, for the T.C. :—
Richardsons Westgarth & Co., Ltd., Hartlepool £6,730
Film Cooling Towers, Ltd., London .. 6,485
Peter Brotherhood, Ltd., Manchester.. 6,462
Worthington-Simpson, Ltd., London 6,400
Premier Cooler & Engineering Co., Salford..... 6,128
Visco Engineering Co., London 5,571
*Davenport Engineering Co., Ltd., Bradford 5,539
Hamon Freres, Brussels 4,650

LEEDS.—New banking premises in Kirkstall-road, for the Yorkshire Penny Bank, Ltd. :—
*Wm. Nicholson & Sons (Leeds), Ltd.

LEICESTER.—Rebuilding and enlarging Overton road infants' school, for the E.C. :—
*Clark & Garrett £6,180

LEICESTER.—Alterations and improvements at St. Mary's Fields Special School, for the E.C. :—
*J. C. Kellett & Son..... £1,655

LEICESTER.—Reconstruction of lantern light at Spencer-street baths, for the T.C. :—
*W. Freer..... £589 19

LEICESTER.—The T.C. have allocated contracts for the erection of 500 houses at £465 per non-parlour house, and £515 per parlour house :—
*Bambury & Sowden—16 non-parlour ; 32 parlour.
*J. R. Cook, Ltd.—12 non-parlour ; 6 parlour.
*G. Gurney, 10 non-parlour ; 8 parlour.
*Smith, Glenfield—10 non-parlour ; 8 parlour.
*Hardington, Elliott & Co.—20 non-parlour ; 26 parlour.
*Marriott Bros. & Porter—22 non-parlour ; 24 parlour.
*J. Whitmore—16 non-parlour ; 6 parlour.
*T. W. Pratt—16 non-parlour ; 10 parlour.
*H. Cook—2 non-parlour ; 10 parlour.
*D. Heggs—10 non-parlour ; 2 parlour.
*H. Frearson & Son—4 non-parlour ; 6 parlour.
*J. Pipes—8 non-parlour ; 4 parlour.
*Blankley—10 non-parlour ; 6 parlour.
*Gregg & Lee—8 non-parlour ; 22 parlour.
*E. Sherriff, Rearsby—8 non-parlour ; 24 parlour.
*Walter Potter, Narborough—24 non-parlour ; 18 parlour.
*A. E. Robinson—14 non-parlour ; 14 parlour.
*Jelley & Son—10 non-parlour ; 12 parlour.
*Potter & Lockley—30 non-parlour ; 12 parlour.

LLANGOLLEN.—Fifteen houses on the Glanrafon site, for the U.D.C. Mr. E. Lovatt, surveyor :—
McLachlan, Warrington £7,811 0 0
D. Davies & Sons, Llangollen .. 7,737 0 0
Rici Jones, Llangollen 7,001 5 0
F. Roberts & Sons, Trevor, Llangollen 6,911 17 6
Higgin & Sons, Wrexham 6,900 0 0
W. F. Humphreys, Cefn, Wrexham 6,675 0 0
†Miles Bros., Rhos, Wrexham .. 6,460 0 0

LONDON.—New church of St. John, Southend Village, Catford. Sir Charles A. Nicholson, Bart., architect, 2, New-square, Lincoln's Inn, W.C.2. Quantities by Mr. Alban H. Scott, surveyor, 13, Old-square, Lincoln's Inn, W.C. :—
Cornish & Gaymer, North Walsham £42,800 0 0
Roberts & Co., London 32,347 0 0
Bell & Sons, Saffron Walden .. 31,553 0 0
T. Crossley & Son, Bromley .. 31,516 10 0
Rice & Son, London 31,509 0 0
Wm. Simms, London 30,692 0 0
Hill & Gurr, Bromley 30,562 19 4
G. B. Farrar & Co., London .. 30,142 17 2
F. & T. Thorne, Isle of Dogs, E. 28,741 15 0
Foster & Dicksee, Rugby 28,267 0 0
Booth & Son, Banbury 26,800 0 0
Wooldridge & Simpson, Oxford 26,055 17 0
Walden & Son, Henley-on-Thames 25,679 0 0
†Bowman & Son, Stamford .. 24,303 0 0

LONDON.—Internal re-decorations to the married couples' quarters at the Ladywell Institution, Lewisham, for the Bermondsey B.G. Messrs. Newman & Newman, architects, 24, Railway-approach, London Bridge, S.E. :—
S. Harries..... £445 0 0
A. Vigor, Ltd. 379 0 0
Why & Clayton 344 6 4
E. Peddle & Son 315 0 0
G. N. Harling & Son..... 309 0 0
W. T. Ricketts & Sons 275 0 0
W. J. Simms, Sons, & Cooke, Ltd. 245 0 0
M. Greenwood & Son, Ltd..... 210 0 0
*H. W. Spinks 170 0 0
R. Mansell 167 0 0
J. Hockings & Co..... 165 0 0
(All of London.)

MANCHESTER.—Wrought-iron fencing and gates at Chorlton Brook open space, for the T.C. :—
*W. Blacker, Stalybridge.

MANCHESTER.—Conveniences in Birch Fields, for the T.C. :—
*Fearnley & Sons, Ltd., Salford—General Contractors.
*T. Kilburn & Son, Manchester—Slater.
*R. Heyworth & Co., Manchester—Plumber.
*O. W. Williams & Co., Manchester—Painter.

MANCHESTER.—Erection of Newton Heath Technical School, for the T.C. :—
‡R. Carlyle & Co., Ltd., Old Trafford—Contractors.
‡T. Kilburn & Sons, Manchester—Slater.
‡T. Lightfoot & Co., Manchester—Plumber.
‡R. H. Lord, Manchester—Asphalter.
‡Robinson & Kershaw, Manchester—Steelwork.
‡J. Heywood & Co., Royton—Cast-iron.
‡A. & S. Wallace, Newton Heath—Plasterer and Painter.

MANCHESTER.—Tenders accepted by the T.C. :—
Harpurhey High school—
Heating installation: *Saunders & Taylor, Ltd., Manchester.
Bank Meadow Municipal school—
Heating installation: *Blackshaw & Co., Macclesfield.
Heald-place Practical Instruction centre—
Electric lighting: *Sudlow & Co., Manchester.

MANCHESTER.—Masons' work on the erection of Levenshulme High school for girls, for the T.C. :—
*J. J. Hirst & Son, Denton.
(In place of S. & J. Whitehead, Oldham.)

MANCHESTER.—Heating installation at Hague-street Municipal school, for the T.C. :—
*J. Turton & Sons.
(In lieu of Haden & Sons.)

MANCHESTER.—Electric lighting, Burnage Municipal school and St. Philip's school, Hulme, for the T.C. :—
*A. E. Sudlow & Co., Manchester.

MANCHESTER.—Houses on the Moston estate, for the T.C. :—
*Messrs. Gerrards, Swinton.

MANCHESTER.—Reconstruction of Chorlton Central school :—
Excavator, bricklayer, &c.—
*H. Green & Son, Manchester.
General contractors—
*Tinker & Young, Ltd., Manchester.
Mason—
*A. Mackay, Oldham.
Slater—
*Beaumont (Manchester), Ltd., Manchester.
Plumber, &c.—
*A. Tinker, Manchester.
Painter—
*C. Bell (Manchester), Ltd., Manchester.

MEXBOROUGH.—Sixteen non-parlour type houses in Harlington-road, for the D.C. Mr. G. F. Carter, Surveyor :—
*G. W. Meanley & Son, Ltd., Mexborough £432

NEWPORT.—Ten flats at Maindee Station site for the T.C. :—
*King & Co. £5,677 16

NEWPORT (MON.).—Heating installation at new offices at rear of town hall, for the T.C. :—
*E. Parkin & Sons £600

NUNEATON.—144 houses on the Stockingford site, for the T.C. :—
*T. Johnson, Birmingham..... £62,768
(*Subject to M.H. approval.)

OSSETT.—New elementary Council school at Gawthorpe, for the E.C. Messrs. W. A. & C. Kendall, architects, Market-place :—
Excavator, concretor and brickwork—
*Hinchliffe, Oldroyd, Ossett..... £7,196
Joiners—
*M. Lockwood & Son, Ossett 2,184
Slater—
*J. Kellett, Morley 816
Plasterer—
*R. H. Lockwood, Horbury 805
Plumber and Glazier—
*J. A. Fawcett, Ossett 984
Painters and Decorators—
*J. Hancock & Sons, Ossett 246

RAINHAM.—Additional class-rooms at elementary school, for the Essex E.C. :—
*Simms, Stepney £3,103

ROMFORD.—New Sunday school in Gidea Park, for the Ilford Wesleyan Methodist Church. Mr. S. Phillip Dales, architect, 63, High Holborn, W.C. 1 :—
*H. Somerford & Son, London £2,178

SANDBACH.—Twelve non-parlour type cottages in Hassall-road, for the U.D.C. Mr. J. R. Price, architect :—
Per cottage.
C. W. Machin, Biddulph..... £533 0 0
W. Street & Son, Sandbach 498 0 0
H. Hilditch & Son, Winterley, near Sandbach 487 0 0
S. Jackson, Ltd., Smallwood, near Sandbach 485 0 0
H. & E. Shaw, Sandbach..... 476 0 0
Edge, Son, & A. Davies, Whitchurch 466 13 4
P. McLachlan, Warrington.... 466 7 0
H. Smith, Congleton..... 466 0 0
*G. Edwards & Co., Ltd., Alsager 459 17 6

SALFORD.—Motor garages and social room at Albion-place, for the C.B. :—
‡J. Ramsbottom, Pendleton..... £5,520

SHEFFIELD.—Widening and reconstruction of Shirland-lane bridge, for the T.C. The Improvement Surveyor :—
*A. Waddington & Son..... £12,054 17 7

SHEFFIELD.—200 houses at the Manor estate, Intake, for the T.C. Mr. F. E. P. Edwards, F.R.I.B.A., City Architect :—
J. Laver & Sons, Ltd., Woodseats, Sheffield £79,669

SHEFFIELD.—Wrought-iron fencing at the Manor estate, for the T.C. :—
*Bayliss, Jones & Bayliss, Ltd. £437 7 6

SHIPLEY.—Fifty-four semi-detached houses in Thackley Old-road :—
*J. & P. Obank, Thackley.

SMETHWICK.—For (*a*) low pressure hot-water heating apparatus and domestic hot-water supply ; and (*b*) installation of electric light, at the Holly Lodge High School for Girls, for the C.B. :—
(*a*)‡The Brightside Foundry & Engineering Co., Ltd., Birmingham.. £2,134
(*b*)‡H. Hope & Sons, Ltd., Smethwick.. 1,095

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SOWERBY BRIDGE.—Twenty scullery houses on the Willow Park estate, for the Council :—
Mason and Bricklayer's work—
*Wm. Parker, Sowerby Bridge.
Carpenters and Joiners—
*J. H. Naylor & Sons, Halifax.
Slaters and Plasterers—
*T. Dyson & Son, Sowerby Bridge.
Painters—
*Hitchen & Thomas, Sowerby Bridge.
Electricians—
*Oakley, Green & Wilson.
Plumbing and Glazing—
*Albert Booth, Sowerby Bridge.

TENDRING.—For (*a*) six houses at Little Holland, and (*b*) six at Beaumont, for the R.D.C. :—
(*a*)*H. G. Griggs £2,169 14 3
(*b*)*J. R. Sage & Son 1,960 0 0

UXBRIDGE.—Additions and alterations to the Isolation Hospital, Yeading-lane, Hayes, for the Joint Hospital Committee. Mr. W. L. Eves, F.R.I.B.A., architect :—
*W. S. Try, Uxbridge..... £2,801

UXBRIDGE.—Keeper's lodge, lavatories, shelters, entrance gates, &c., on the Fassnidge Memorial recreation ground, for the U.D.C. Mr. W. L. Eves, F.R.I.B.A., architect, 54, High-street :—
*W. S. Try, Cowley, Uxbridge..... £2,288

WEST BROMWICH.—156 to 206 houses, Charlemont estate, for the T.C. Messrs. Harvey & Wicks, architects, 5, Bennett's-hill, Birmingham :—
‡Richards, Smith & Co., Ltd., Chasetown.

WILLESDEN.—For alterations and redecorations in the basement at the Town Hall, for the U.D.C. :—
*White & Anstey £138

YORK.—Railings and gates for Tang Hall Park, for the T.C. :—
‡Bayliss, Jones & Bayliss..... £313 7 6

Herrick Memorial.

A chancel window has been dedicated to Robert Herrick, poet, in the Parish Church of Dean Prior, Dartmoor.

Crosby Hall.

The L.C.C. recommend that, in the event of the scheme for housing students in the new hostel buildings to be erected on land adjoining Crosby Hall failing to prove remunerative, the Council is prepared to give permission to its lessees to adapt the buildings for flats, subject to the approval by the Council of plans to be submitted showing the proposed alterations.

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